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THE
PHILADELPHIA JOURNAL
OF THE
MEDICAL AND PHYSICAL SCIENCES.

SUPPORTED BY AN ASSOCIATION OF PHYSICIANS,

AND

EDITED BY N. CHAPMAN, M. D.

PROFESSOR OF THE INSTITUTES AND PRACTICE OF PHYSIC AND CLINICAL
PRACTICE, IN THE UNIVERSITY OF PENNSYLVANIA.

"In the four quarters of the globe, who reads an American book? or goes to an American play? or looks at an American picture or statue? *What does the world yet owe to American Physicians or Surgeons?*"

Edinburgh Review, No. LXV.

VOL. VI.

PHILADELPHIA:

H. C. CAREY & I. LEA—CHESNUT STREET.

William Fry, Printer.

1823.

Eastern District of Pennsylvania, to wit:

***** BE IT REMEMBERED, that on the thirteenth day of November,
* SEAL * in the forty-seventh year of the independence of the United States of
* America, A. D. 1822, H. C. Carey & I. Lea, of the said District, have
deposited in this office the title of a Book, the right whereof they claim as proprietors in the words following, to wit:

“The Philadelphia Journal of the Medical and Physical Sciences. Supported by an Association of Physicians, and edited by N. Chapman, M. D. Professor of the Institutes and Practice of Physic and Clinical Practice, in the University of Pennsylvania.

“In the four quarters of the globe, who reads an American book? or goes to an American play? or looks at an American picture or statue? *What does the world yet owe to American Physicians and Surgeons?*”

Edinburgh Review, No. LXV.

In conformity to the Act of the Congress of the United States, intituled, “An Act for the encouragement of Learning, by securing the Copies of Maps, Charts, and Books, to the Authors and Proprietors of such Copies, during the times therein mentioned.”—And also to the Act, entitled, “An Act supplementary to an Act, entitled, ‘An Act for the encouragement of Learning, by securing the Copies of Maps, Charts, and Books, to the Authors and Proprietors of such Copies during the times therein mentioned,’ and extending the benefits thereof to the Arts of designing, engraving, and etching historical and other Prints.”

D. CALDWELL,

Clerk of the Eastern District of Pennsylvania.

Albany Exchange.

TO READERS AND CORRESPONDENTS.

1. We wish it to be distinctly understood, that we neither have, nor will receive, any pecuniary compensation as Editor of this Journal. The motives which led us to engage in the enterprize, are announced in our prospectus, and will be found liberal, and wholly disinterested. To this subject attention is now called, with a request, that communications for the work, and all matters of correspondence relative to it, may be addressed to the publishers, Messrs. H. C. Carey and I. Lea, Booksellers, Philadelphia.

2. We have to acknowledge the reception of several very interesting communications for this Journal, which shall appear in the next number. In the name of our printers, and ourselves, we again beg of our correspondents to write *legibly*. The vexation, not to mention other more serious inconveniences, to which the want of a little care in this respect exposes all concerned in the publication of manuscripts, can scarcely be conceived by any one who has not experienced it.

3. We are happy to announce another Journal, dedicated to the diffusion of medical knowledge. It purports to be edited by an association of physicians, and is issued from Hartford, Connecticut. The work is entitled, "The Monthly Journal of Medicine, containing Selections from European Journals, and the Transactions of learned Societies, &c. embracing a concise Analysis of the Medical Journals of the United States." In the numbers which have already appeared, much care and judgment is evinced in the selection of the matter, and we cordially wish success to the enterprize.

4. The republication of the Medico-Chirurgical Review, &c. of London, we understand, is commenced in New York. As one of the very best of the foreign Journals, we strongly recommend it to the cultivators of medicine in the United States. Yet, by curtailing the sale of the imported copies, the number of which

is considerable, we cannot help thinking, that great injustice is done to the editor, who is *the sole proprietor* of the work, and who probably derives his main support from it. This is not exactly an affair of trade between the booksellers of the two countries, whose privilege of *pirating* on each other, seems no longer to be disputed.

5. It is gratifying to us to state, that our friend Dr. Dewees has nearly ready for the press a series of Essays on the more interesting parts of Midwifery. As a learned, original, and practical writer on such subjects, his established reputation affords the surest pledge of the value of the work, and of its success. The foreign critics, who have reviewed his publications, without a single exception, accord to him the highest praise, and we cannot forbear to cite a recent notice, in the same spirit, from one of our own journals.

“The writings of Dr. Dewees will carry conviction to the mind of every reader, that he is perfectly master of whatever subject he attempts to discuss. His papers on puerperal convulsions, extra-uterine conception, on the rupture and retroversion of the uterus, and uterine hemorrhage, constitute an invaluable series, which we hope to see yet further extended.”

Monthly Journal of Medicine.

6. We are requested by Messrs. Carey and Lea, booksellers, to announce, that they will speedily put to press the third edition of *Chapman's Elements of Therapeutics and Materia Medica*. The work will appear in a new shape, much enlarged and improved. No inconsiderable portion of it has been re-written, the whole carefully revised, and rendered more worthy of the patronage it has heretofore received.

7. Dr. Beck, of Albany, New York, has in the press, a Treatise on Medical Jurisprudence, in two volumes, 8vo, which, from his acknowledged talents, and thorough knowledge of the subject, will, no doubt, be ably executed.

8. “Dr. Chapman having resigned the office of Professor of Anatomy in the Pennsylvania Academy of Fine Arts, John Bell, M. D. was, on the evening of the 16th of April, unanimously elected as his successor, at a special meeting of the President and Directors of the institution.”—*National Gazette*.

We are really delighted at this appointment. It has been conferred on one of the most accomplished of our young men,

whose talents and studies peculiarly fit him to discharge the duties it imposes, and affords a *third* conspicuous instance of the liberality and kindness of the good people of this city towards the sons of *Virginia* in the distribution of their scientific honours.

9. In the press, "Essays on Fevers, and other medical Subjects." By Thomas Miner, M. D. and William Tully, M. D. This is a work, no doubt, of merit. The latter gentleman particularly is well known to us, as a very pure and classical medical writer.

10. We have just received a copy of a "Treatise on the Materia Medica, intended as a sequel to the Pharmacopœia of the United States, &c. By Jacob Bigelow, M. D. Professor of Materia Medica in the Harvard University."

As we purpose to give a review of this work in our next number, we shall now only remark, that it is worthy of the reputation of its distinguished author.

11. We wish particularly to call the attention of our readers to the "Bills of Mortality," inserted at the close of our present number, as exceedingly interesting in several points of view. They have been furnished by a venerable friend, always sedulous in the collection of useful knowledge, and who has promised, in this way, to continue his valuable services to this Journal. Excepting New-Orleans, they will be found complete, as regards the large cities of the United States. We shall be very much obliged to any one who will have the kindness to supply this deficiency—and not less so for the communication of well kept *meteorological tables*, in any section of our wide spread country.

TO SUBSCRIBERS.

The Publishers request that all those Subscribers who have not yet remitted the amount of their subscription for the current year, will do it with as little delay as possible. In every case in which it is not received within the year, the Publishers must, without distinction, strike the name from their list.

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THE
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ART. I. *Thoughts on the probable destiny of New Orleans, in relation to Health, Population and Commerce.* By CHARLES CALDWELL, M. D.

AN opinion has gone abroad, and attained, as is believed, a very general currency, that in consequence of its sickness, especially its liability to pestilential fever, New Orleans can never become a great emporium of business, the seat of an extensive commercial capital, and of direct importation from European ports. Hence, say those who entertain this opinion, *heavy articles of commerce* alone will reach the Western States, by the way of that city—all finer and lighter goods continuing, as at present, to be conveyed to them over the mountains, or through the navigation of the lakes, from the Atlantic cities.

It will be perceived that this belief, so cheerless in itself, and so hostile to the prosperity of the western country, rests on a single position, namely, the presumption, that, from its climate and topography, the city of New Orleans is necessarily and irremediably unfavourable to health.

If this position be true, the inferences drawn from it, gloomy and discouraging as they certainly are, few, perhaps,

will be inclined to question. But if, on the contrary, its foundation can be shown to be unstable and defective, the superstructure erected on it must inevitably fall, and the whole ground be abandoned as untenable—since all acknowledge, that were New Orleans healthy, it would necessarily become one of the greatest of cities.

To attain a better understanding of this subject, let us submit it to a brief, though careful analysis.

It will be regarded, I presume, as a recognized truth, that a situation radically and necessarily inimical to health, must on its native inhabitants, the children born and the adults reared in it, imprint characteristic marks of its deleterious influence, that can be neither concealed nor mistaken—that the constitutions of foreigners who have long resided in it must be shattered and feeble—and that it must be a stranger to longevity and vigorous old age. It will be further conceded, that, in such a situation, native children cannot be very numerous—that the average of births cannot greatly exceed that of deaths—that, consequently, the natural increase of population must be slow—and that the native adults can never be marked by strength and activity of body, and rarely, perhaps, by sprightliness of mind, and buoyancy of spirits.

These propositions, I say, cannot fail to be admitted, because many and incontestable instances might be adduced, to prove that they are true. In a few sections of the Atlantic States, and in many parts of foreign countries, such instances abound.

But from all these evidences of a sickly situation, the city of New Orleans is pre-eminently free.

The native children, exceedingly numerous and active, with countenances sun-burnt, but full of animation, are unusually exempt from all the most spacious and formidable outlets of infantile life in other parts of the union. *As a prevailing disease*, cholera infantum, the scourge of children in the Atlantic cities, and a very frequent and unwelcome visitor in most towns of the west, is there unknown. The same is true of croup, catarrhal fever, and hydrocephalus

internus. These maladies, so common and destructive in more northern latitudes, are, at least, of very rare occurrence in the city of New Orleans. The process of dentition creates there comparatively little inconvenience, and convulsive affections among children seldom appear. Scrophula and rickets are only heard of at a distance. The general average of the births over that of the deaths of the native inhabitants being in the proportion of about three to one, the increase of natural population is unusually rapid.

In stature, the native adults of New Orleans are tall, well proportioned, active, and vigorous, with great sprightliness of intellect, and elasticity of spirit. Like the children, they are signally free from that multiplicity of complaints which assail the inhabitants of higher latitudes. Unless introduced from distant places, pectoral affections of every description are exceedingly rare. Except as an exotic, phthisis pulmonalis never appears.

Emigrants, who have long resided in the place, and, from the time of their arrival, carefully adapted their mode of living to the nature of the climate, enjoy, for the most part, uninterrupted health. From this we must except the attack of fever, denominated acclimature or seasoning, to which they are usually subject the first or second summer after their arrival. To those who practise temperance, and use in other respects, suitable precautions, this visitation, *in common years*, is seldom dangerous. It is to the careless, the dissipated, and the intemperate, that it proves formidable.

In proportion to the number of its native inhabitants, and of *acclimated* strangers who live within the rules of temperance and prudence, New Orleans exhibits as many instances of longevity, and of green old age, as any other city in the United States. Rheumatism, gout, asthma, dyspepsia, apoplexy, palsy, and catarrhus senilis, complaints which, in other places, render advanced life a spectacle of feebleness, decrepitude, and suffering, are there but little else than a name. The oldest inhabitants of the city and country, possess an elasticity of muscle, and a pliancy of

limb, which, in colder and more variable climates, are enjoyed only by more youthful individuals. Hence, on festive occasions, grand parents, and even great grand parents have been seen mingling with activity and sprightliness in the same dance with their descendants of the third and fourth generations.

Except during the autumnal season, and a few weeks, perhaps, towards the close of summer, the native and acclimated inhabitants of New Orleans are exempt from disease. Even then their indisposition is rare, and their complaints simple and easily removed. During three fourths of the year, no actual disease prevails to annoy them, nor do even the dreams of it trouble their repose. But shall I be told, that notwithstanding this favourable representation of the health of that city, it is marked, during a part of the year, with much sickness, and that its annual bills of mortality are high.

Although not convinced that, compared with those of other places, the bills of mortality *are unusually high*, yet, admitting the truth of the whole charge, I contend; that a full and satisfactory explanation of it is perfectly compatible with the statement I have given.

Arising from the active and flourishing state of its commerce, New Orleans contains a much larger proportion of floating population, than any other city in the United States. This is composed partly of sailors, boatmen, and day-labourers, who, from the nature of their occupations, are necessarily exposed far beyond any other class of citizens, to all the existing causes of disease—and, in part, of inexperienced and adventurous strangers, whose object is to make or repair their fortunes, and too many of whom pursue the most profligate and perilous courses.

To these two classes of individuals, in ordinary years, are the diseases that prove fatal almost exclusively confined. Being very numerous, enfeebled in constitution by licentious practices, and, in many instances, badly accommodated and attended during their illness, the deaths that occur among them swell to an unnatural extent the bills of mor-

tality, and affix on the situation and climate of New Orleans that odium, which ought to attach to their own irregularities. That this is true, appears not only from the nature of things—dissipation and disease being indissolubly allied—but from the irresistible fact, that while the careless and the licentious suffer, the temperate, circumspect, and orderly portion of the community usually escape. Even when a pestilential epidemic prevails, the native and acclimated inhabitants, who avoid exposure and improper excesses, and obey the injunctions of prudence and discretion, rarely suffer from it. The few exceptions which have occasionally appeared, however melancholy in themselves, and injurious in their influence on the reputation of the place, do not affect the general rule.

Even in the existing condition, then, of the police of New Orleans—and we have reason to believe that it is daily improving—the disease and mortality which affect so materially the character and interests of the city, are more attributable to the faults of the sufferers, than to those of the place.

That on the part of strangers, on their first arrival, greater precautions are requisite for the preservation of health, during the summer and autumn, than in cities situated in more temperate climates, will not be denied. But those precautions consist simply in a reasonable observance of the dictates of prudence, and the precepts of morality, a task, which can never prove burthensome to the virtuous and the wise, and which all persons are alike commanded to perform. Besides, if health be preserved with more difficulty during a few weeks in summer, and throughout the autumn, than in higher latitudes, as a counterbalance to this, it is much more easily preserved during the remainder of the year. Nor does strict truth, perhaps, exact of us the concession, that to preserve the health of natives of the north, in the city of New Orleans, during the summer and autumn, more rigid precautions are necessary than there would be to maintain, under the rigours of a northern winter, the health of the natives of a warm climate.

By too many of the strangers who visit New Orleans, is the easy task of precaution in relation to health, most signally, not to say criminally, neglected. Finding themselves in a remote quarter of the Union, beyond the eye and voice of those whose inspection and admonition they had been accustomed to respect, and perhaps, in their own estimation, beyond the limits of decorum and good order, they fearlessly plunge into the depths of licentiousness, expose themselves, without restraint, to the fervours of the day, and the chills and damps of the midnight air, and, in various ways, drink more deeply than usual of the delicious but empoisoned chalice of dissipation. The same course of profligacy, pursued for a time, would entail on them disease in any situation. No wonder, then, that it produces it sooner, and bestows on it a more dangerous character, in a place where the predisposition to disease is, perhaps, stronger, and stricter precautions are, therefore, required.

Boatmen, sailors, and day-labourers who mingle with them, cannot be made subjects of salutary restraint. Reared without moral discipline, or self-command, they *will* be dissipated in every situation, and are, in all places, signalized as the chief sufferers from epidemic diseases.

But could the strangers of better education and higher standing, who, on business, or for other purposes, repair to New Orleans, be induced to govern themselves by the same rules of discretion and propriety, which mark the conduct of the *settled inhabitants*, both their health and morals would be much more secure. For, in relation to *that class* of the citizens, it is but justice to declare, that a people more sober, decorous, and correct in their deportment and general economy, is not to be found in any city I have ever visited.

Strangers are themselves the chief perpetrators of that dissipation they affect to abhor, and too often the prime agents in the production of that disease, of which they afterwards so loudly complain. Let them reform their own lives, and, added to benefits of a higher order, they will be rewarded with the enjoyment of better health.

In further evidence of the truth of this, I might adduce the well known fact, that, in common years, the females of New Orleans are much less subject to disease than the males. The reason of this is obvious. Their habits being more temperate, and their lives more regular and orderly, they are less exposed to exciting causes.

But the irregularities of individuals are not the only artificial causes which swell, in New Orleans, the amount of disease. In some respects, the police of the city is no less in fault.

It is matter of regret to me, that the narrow limits within which I must confine myself, forbid me to dwell on this important subject.

Time permits me barely to remark, that it is not true, as some have alleged, that an efficient police cannot be established on the banks of the Mississippi. Of such an institution the sole ends are cleanliness and purity, and they can be attained in the city of New Orleans with great facility. Contrary to popular belief on the subject, no city on earth, of equal dimensions, can be more easily and cheaply drained of its superfluous waters. Nature has, herself, not only formed with uncommon regularity the inclined plain over which they are to flow, but has provided a suitable reservoir for their reception. To man it belongs to prepare the conduits, an undertaking of no real difficulty, and of little expense, and the establishment will be complete.

The institution of a police, salutary and efficient in all its details, will be a work of no inconsiderable magnitude. It must embrace a wide and varied range of operations, and effect several radical and important changes.

A strict and enlightened attention to the shipping, wharves, shores of the river, the canal and the Batture, the plenteous watering of the whole city, and a thorough reform in the condition of the markets, streets, gutters, privies, sewers, cellars, places of interment, and several other minor points, must fall within its scope.

But weighty and important as it is, it is richly worth effecting—is now, I am informed, in very promising progress.

and cannot fail to be ultimately completed. The issue will be a matter of great moment, and a theme of extensive and lively gratulation—the general melioration of the health of the city, and the preservation of the lives of many of its inhabitants, the redemption of its character from unmerited obloquy, and the permanent promotion of its vital interests, with those of the entire region of the west.

I know it is reported, and generally believed, that there exists in the vicinity of New Orleans a vast and irreclaimable marsh, which must be a fertile and enduring hot-bed of disease. This may be deliberately pronounced a mistake. Within that distance from the city, at which miasmata have been known to strike, there is not to be found any thing that deserves the name of a marsh. The tract which is so denominated, exhibits an aspect, and bears a character entirely different. Throughout the year it is completely flooded, or completely dry, and never consists, as a real marsh does, of an offensive mixture of stagnant water, mud, and putrefying animal and vegetable substances. Hence, it never sends forth a deleterious exhalation to empoison the atmosphere, and engender disease. In proof of this, I need only observe, that those who reside on its immediate border, enjoy excellent health—better, indeed, than those at a distance. Disease prevails most along the shore.

It is further alleged by a misinformed public, that the state of Louisiana generally being low, flat, and inordinately sickly, no large and populous city erected in it can possibly be healthy. This argument, if so it can be denominated, against the healthfulness of New Orleans, is liable to two objections, which completely invalidate it. A place unhealthy as it came from the hand of nature, may be rendered otherwise by the labours of man. Of the truth of this, Philadelphia furnishes a striking instance. That city, now esteemed one of the healthiest in the world, was, for more than half a century after its establishment, visited annually by bilious fever in all its varieties.

The same thing is true of Amsterdam, Rotterdam, and several other cities in the low countries in the north of Eu-

rope. Even Petersburg, in Russia, has experienced, by the force of human improvement, similar changes in relation to health.

But it is not true, that Louisiana is one unbroken region of sickness. Various parts of it, on the contrary, are signalized by the uninterrupted health of its inhabitants. In that highly cultivated and beautiful tract on the Mississippi, denominated the *Coast*, disease can scarcely maintain its existence.

In evidence of the verity of this statement, the following memorable facts may be adduced.

In a small settlement on the Coast, there were living, a few years ago, nine individuals, natives and long resident inhabitants of the place, the aggregate of whose ages exceeded nine hundred years. This fact comes to me on authority which I am forbidden to doubt.

In certain districts of the State, where accurate parish registers are kept, the average of births to that of deaths, is found to be as three and a half to one, a proportion in favour of life and propagation, which does not, I think, obtain in any other section of the United States. In Europe, the general average of births to deaths is as thirteen, or, at furthest, fifteen to ten, one half surplus being the highest proportion in favour of life. The part of Louisiana to which I particularly allude, is one of the parishes in the section of country denominated Atakapas.

When, in the war of 1756, the French neutrals, as they were termed, emigrated from Acadia, near the river St. Lawrence, they removed to sundry parts of North America. A considerable party of them settled on the banks of the Delaware, and another, of about the same size, along the shores of the Mississippi. Of the former, all the original emigrants are long since dead, and very few of their descendants are any where to be found—whereas of the latter, many of the first settlers are still living in vigorous old age, with a numerous progeny flourishing around them. By these emigrants and their offspring, a large portion of the parish of Acadia is populated.

A gentleman with whom I am intimately acquainted, lived eleven years as a planter on the Mississippi coast, about a hundred individuals residing on his estate. During that period he found use for cradles to coffins in the proportion of *fourteen to one*. It would be superfluous to observe, that in a situation really sickly, no such average of births to funerals can possibly occur.

Under this head I shall only add, that in proportion to the amount of its native and long resident population, no State in the union surpasses Louisiana in the average of its longevity. Nor is old age, in any region, more green and elastic.

But I may be told, that my whole argument in favour of the healthfulness of New Orleans is overthrown, by the serious and repeated epidemical ravages which that city has lately sustained.

When duly considered, this observation has no weight. By a similar mode of reasoning, if so it can be called, I could affix the charge of unhealthfulness on almost every city, town, and tract of country, whose history is known.

Calamitous visitations similar to those which New Orleans has experienced, have fallen repeatedly to the lot of every commercial emporium in the union, to some of them *more* repeatedly than to that city.

Turn to the story of Philadelphia, for the last twenty-nine years. *Eight times*, within that period, has she been the seat of pestilence—while, within the same space, New Orleans has not suffered more than *six times*. Of mere *sporadic* cases, in either city, I make no account.

New York, Baltimore, Norfolk and Charleston, have been afflicted in a degree nearly equal to that of Philadelphia. Even Boston herself, reposing as she does beneath the skies of the north, and fanned as she is by the breezes of the ocean, has been several times the theatre of pestilential ravages.

I might rapidly glance over the countries of Europe, and point out to you the deep and appalling footsteps of pestilence in all her cities. London, Paris, Vienna, Moscow,

Constantinople, Rome, Venice, Amsterdam, Marseilles, and many other places of inferior note, have been repeatedly visited by that scourge of humanity.

Who can have forgotten the deadly sickness which, a few years ago, prevailed so repeatedly along the borders of our northern lakes, rendering that country almost uninhabitable? A more malignant and fearful malady never swept the shores of the Mississippi. But where is it now? Gone by the influence of cultivation, or at the mandate of heaven, acting through a propitious change in the constitution of the atmosphere, never, perhaps, to return—or not, at least, until a distant period.

Have the several cities, just mentioned, then, survived the reiterated havoc of pestilence, and become afterwards flourishing, opulent, and great? And is New Orleans alone fated to sink beneath its influence? The notion is alike unmanly and visionary—the puny offspring of fear and fancy, unsupported by a solitary example in the records of society. I challenge history to designate a single city on earth, the seat of vast commercial advantages, which has been blasted in its prospects, or even materially stunted in its growth by the apprehension of disease. In the revolutions of cities, such a phenomenon is not to be found.

Havanna, although accounted sickly, is wealthy, great, and populous. The same was true of Cape Francois, before she fell a prey to fire and massacre. Constantinople, so often the theatre of pestilence, is one of the first of cities. Calcutta, although once very sickly, contains near a million of inhabitants, possesses immense wealth, and is the emporium of a most extensive and flourishing business—and Grand Cairo, the very source and centre of Egyptian plague, exhibited, when in her glory, within her walls, the traffic, and opulence, and population of a kingdom.

The truth is, that wherever splendid prospects, whether of emolument or fame, power or public good, present themselves, be the hazard what it may, man will adventure, and ought to adventure, for the glittering prize: and, in relation

to health, he has rarely failed to surmount or remove the obstacles erected by climate and situation.

Nor will he, can he fail, in the case of New Orleans. From the advantages of its position, and its exclusive relations to a vast and fertile country, that city presents greater natural facilities for an extensive and lucrative commerce than any other spot on the American continent.

Will the people of the United States, high spirited, and renowned for enterprize and intrepid daring, suffer such brilliant and inviting prospects to be forever darkened by a passing cloud, and withered by the occasional breath of pestilence? If they do, I am deeply and painfully mistaken in their character, and in all my lofty anticipations of their efficiencies. In such an issue of things, European cupidity, profiting by their timidity and neglect, would usurp the places which they should have occupied, and still fulfil, although less rapidly, and at a remoter period, the destinies of New Orleans. To achieve what is great, man must not tremblingly take counsel of his fears, nor always calculate, with a clerk-like precision, the chances of danger.

Although it is true, that some places are more liable to pestilence than others, and that other things being alike, warm climates favour its origin, it is no less so, that it is not the *necessary growth* of either climate or situation, nor yet of the confederated agency of both. United to local influences, it requires, for its production, a peculiar condition or constitution of the atmosphere. Fortunately for man, that constitution is not perpetual. Arising from no causes with which we are acquainted, and controlled by no discovered laws, it is fluctuating alike in its occurrence and duration. Visiting us occasionally, without any premonitory evidences of its approach, it spreads over tracts of country more or less extensive, continues to prevail during an indefinite time, and then disappears, not to return until after the lapse of an undetermined period. Such are the result of observation and the testimony of history, as to the rise and disappearance of pestilential epidemics. As regards the pestilence of the east, no less than

that of our own country, this is now a recognized truth. In both hemispheres, indeed, *the disease is essentially the same*, modified in its character by diversity of circumstances.

To the prevalence of this deleterious condition of the atmosphere, New Orleans is not more subject than other places. When it shall obtain, as it sometimes will, throughout the whole or a part of the United States, that city will be equally with Charleston, Baltimore, Philadelphia, and New York, liable to an attack of epidemic pestilence. But, its police being reared to that perfection of which it is capable, I am at a loss for evidence to prove that it will be more so. If such evidence exist, it has escaped my inquiries. In this disquisition, the mere fact, that New Orleans is a few degrees nearer to the sun than our other cities, cannot avail. Regularly fanned by the breezes from the ocean, the maximum of her summer temperature never equals that of Philadelphia. Of her mean annual temperature I am not fully informed, and cannot, therefore, make it the basis of an argument.

At those periods when the atmosphere of our country shall be free from a constitution unfriendly to health, New Orleans will be as exempt from a *prevailing pestilence*, as our other large commercial cities.

If this be not the result of observation and experience, and consistent with our best established views, in relation to the origin of pestilential epidemics, let those who may differ from me in opinion convict me of error. But if it be, then is the character of New Orleans, on the score of health, most wantonly slandered, and it is incumbent on those who possess the means and the competency to do her justice, to be zealous in her defence.

Ask the old inhabitants of New Orleans, and they will concur in declaring, that, until the time of the cession of Louisiana to the United States, when it became crowded with careless and dissolute strangers, it was in health a Montpelier—a place where disease was scarcely known, and where old age was the chief waste-gate of human life. Yet

were its climate, position, and general topography, the same then that they are at present.

Even now, imperfect as is its police, and thoughtless and dissipated the floating portion of its population, it is, during three fourths of the year, much healthier than any city, of equal population, in the United States. Nor is this all that may be alleged in its behalf. Throughout the whole year, during periods of mean health, its fixed inhabitants, native and acclimated, experience less disease, and furnish a lower bill of mortality, than an equal number of the inhabitants of any other large city in the union. On the correctness of this assertion, I am willing to hazard the issue of the whole argument. With what shadow of justice, then, can it be pronounced unhealthy?

One observation more, and I shall dismiss the subject. Those who contend, that, on account of its sickliness, New Orleans can never become a great and opulent city, must either singularly overlook, or blindly undervalue, a fact of perfect notoriety, and which, if duly considered, would do much towards silencing them.

Within the last nineteen years, that city has more than quadruplicated, in the number of its inhabitants, while the extent of its commerce, and the amount of its wealth, have increased in a ratio much higher. In its progress, therefore, towards greatness and opulence, it has no rival. And this progress can scarcely fail to receive an acceleration, which shall be gradually augmented, in proportion to the increase in the population and wealth of that immense and fertile country, whose interests lean towards the gulf of Mexico.*

* The author wishes it to be distinctly understood, that he does not contend for the unqualified healthfulness of the *whole* of the Mississippi country. He does not, at present, possess facts to justify him in speaking on so extensive a scale.

The preceding remarks relate more especially to the city of New Orleans, and to that portion of the Delta bounded on one side, as he believes, by the Iberville, on the other by the La Fouché, by the Balize on the south, and by a line, on the north, running a few leagues below the Bayou Saxe.

It is remarkable, that, in common years, that tract of country is almost

MUCH mischief has doubtless arisen from a propensity which at all times has existed, to introduce into the materia medica inert articles, and which, at present, is exceedingly dominant in the United States. Whoever, therefore, by a clear demonstration of their inutility, succeeds in expunging such articles, is intitled, in our opinion, to nearly the same praise, as he who unequivocally enriches our remedial resources. The spiræa trifoliata is an indigenous plant, admitted we suspect, on too slender grounds, to a distinguished position in the American materia medica, as seems to be shown in the following inquiry relative to its properties, which we have reason to believe, has been conducted with much care and fidelity. This essay was originally presented as an inaugural thesis. EDITOR.

ART. II. *An Experimental Inquiry relative to the Spiræa Trifoliata.* By CHARLES BAUM, M. D.

THE spiræa trifoliata, of the medical qualities of which I mean to treat more particularly, in the subsequent pages—is, from the best information I can collect, an indigenous plant, that spontaneously grows, and is generally to be met with in great abundance throughout the United States—known, and distinguished by the various names of spiræa ipecacuanha, gillenia trifoliata, three leaved spiræa, Indian hippo, Indian physic, meadow sweet, drop wort, Bowman's root, &c.

Definition of the Plant.

The spiræa trifoliata is an herbaceous plant, inhabiting barren and uncultivated situations on dry soils, and scarcely or never to be perceived in open plains. It is cultivated in the botanical garden of the Philadelphia Alms House Infirmary, for ornamental purposes. It has a perennial root, small, slender, and irregular—dividing into many parts, and

entirely exempt from intermittents, and all those forms of bilious fever, which prevail higher up the river, and in other more interior situations.

furnished with an infinity of small fibres. The roots resemble in structure, colour, size and taste, though very indistinctly, the common ipecacuanha of the shops. The roots generally run a little distant from, and sometimes very near the surface of the earth, in various directions—similar to ipecacuanha. They are composed of an external cortical, and internal ligneous substance. When the root is chewed it imparts a more pleasant than disagreeable taste to the tongue—and it gives out no sensible odour.

The growth of this plant is generally from twelve to eighteen inches in height—but influenced, I presume, according to the richness of the soil. The stalks are annual, slender, erect, dividing and sending out branches from the sides, their whole length. These are clothed with leaves, which for the most part, are small and trifoliate, and distributed in an alternate manner: sometimes single, and at others by pairs near the top. They are about an inch and an half long, and half an inch broad, sharply sawed on their edges, acute pointed, and of a bright green colour on their upper surface, and pale on the under.

The flowers are disposed in loose panicles, and terminate the stalks. They have slender petioli or foot stalks, and each of them is possessed of fine spear shaped petals, which spread open, and a great many stamina which are no longer than the tube of the flower—described by some to be of a clear white colour, and by others to be tinged with red. Those which I have seen, and particularly in the botanical garden of the Philadelphia Alms House Infirmary, were slightly tinged with red. The plant flowers in July, and the seeds ripen in September.

I shall now, in conformity to the main intent of the essay, endeavour to show the effects of the spiræa trifoliata when taken into the stomach: and for this purpose Dr. Samuel Jackson kindly presented me with a parcel of the root, which I dried, and very carefully separated the cortical part from the woody fibre.

I took of the perfectly clean and dried root	3	1	32	90	gr.	0
On separation I obtained, cortex	.	.	1	0	0	13
Woody fibres	.	.	.	.	1	2 0
Loss	.	.	.	.	0	0 0 7
					1	2 0 0

The cortical part of this parcel I pulverized very fine, for the purpose of administering it in substance. Being desirous of giving it a full and perfect trial, I procured half a pound of it, and endeavoured to extract its active principle. The manner in which I effected it was as follows: I took of the cortical part of the root finely powdered, three ounces, sulphuric ether six ounces. The powder was macerated with a gentle heat, for four hours, in a distilling apparatus, and then I trituated and boiled the portion which remained, in twelve ounces of alcohol, it having previously been macerated in it, then filtered the liquor, and treated the remainder in the same way, with fresh portions of alcohol, as long as any thing was taken up. I next mixed all the alcoholic solutions, and evaporated to dryness—and macerated the extract in cold water (distilled,) in order that every thing soluble in that menstruum might be dissolved: filtered, and evaporated to dryness. This extract I hoped would contain the active principle, but upon trial found it inert. The manner in which I administered it will be mentioned in the succeeding pages.

Next I caused to digest for eight days, two ounces of the exterior of the root, well bruised, in one pint of common white wine. To one pint of pure water, I added two ounces of the same part of the root, as in the last mentioned formula. Having thus prepared the powder, the extract, the wine tincture, and the watery solution, I commenced with my experiments.

Being a resident student in our Alms House Infirmary, I have had every opportunity afforded me for the administration of the article. I began with the powder

prepared in the manner above mentioned, in order to ascertain its emetic operation.

Experiment 1st. The first experiment was on a middle aged woman, who complained of pain in the head, uneasiness in her stomach—pulse excited, surface hot and dry. I considered this a very suitable patient for the spiræa, and accordingly put up thirty grains of the powdered root, divided into four equal parts, one of which I administered every fifteen minutes, conceiving this a sufficient length of time to allow for the action of each dose. The woman not being aware of what she was taking, upon being asked during the administration of the medicine, and after she had taken all of it, how she felt, replied, I feel no change. I waited thirty minutes after she had taken the last dose, and finding that it had no effect upon her, I put up twenty grains more, divided into two equal parts, and gave it in the same way I did before, without the least effect.

Four hours after she took the last dose, I saw her, and she complaining very much, I gave her an emetic compound of twenty-five grains of ipecacuanha with one grain of tartar emetic—which operated very well.

Experiment 2d. A stout robust man, complained of considerable pain in his head for two days—and his stomach, I was led to believe, from the appearance of his tongue, was out of order: I put up for this patient, forty grains of the powdered root, divided into four equal parts, of which I gave one every fifteen minutes. without producing the least nausea or vomiting: thinking that, perhaps, it would increase the peristaltic motion of the intestines, I gave him nothing after it, but I could not discover that the medicine made the least impression.

Experiment 3d. I gave to a young man, whose stomach I had reason to suspect was disordered, thirty-five grains of the powder, and waited thirty minutes. Finding that it did not affect him in that time, I gave him thirty-five grains more: ten minutes after he took the last dose, which made in all seventy grains, he asked me if it was not an

emetic he was taking : inquiring of him why he asked that question, he informed me that he thought he felt as if he had taken something to make him sick : I stayed with him about an hour longer, and he complained no more of gastric distress. I could not perceive that it had any effect either on the stomach, bowels, or surface, for as much as thirty hours after he had taken it.

Experiment 4th. To the next patient I gave it in the dose of a drachm, without any effect, and twenty minutes after I gave him twenty grains more : ten minutes after he took the last dose, which made in all, eighty grains, he vomited once, and as I judged from the appearance of what he threw up, discharged most of the medicine. He had very little nausea, or other uneasiness about the stomach. It had no effect either upon the bowels, or surface.

Experiment 5th. To the fifth patient I gave eighty grains in one dose, and he not feeling any inconvenience from it, in twenty minutes after, I gave him twenty grains more, making in all, one hundred grains : nineteen minutes after he had taken the last dose, a slight convulsive action of his stomach took place, without much uneasiness, and in three minutes after this, he vomited once, apparently throwing up the greater part of the medicine, along with some of the contents of the stomach, which appeared natural. I now gave him a half pint of chamomile tea, with a view of promoting its operation : in five minutes I gave him another half pint, and in ten minutes after this, I repeated the same quantity—the whole ineffectually. The frequency of the pulse, and heat of the system were not affected.

Experiment 6th. Four drachms were given to a dog, and in the course of half an hour, the spasmodic contractions of the stomach and abdominal muscles were produced, and twice vomiting ensued: the animal did not appear sick after vomiting.

I have frequently, of late, administered it in the human subject, in the dose of from one hundred, to one hundred and fifty grains, with very ineffectual vomiting. The first time vo-

miting was excited, the medicine was rejected, and left the stomach unchanged. I have also given it with tartar emetic in various doses, and found that by combining the two articles no increase of activity was attained.

Experiments with the Spiræa and Tartar Emetic combined.

I put up forty grains of spiræa combined with one grain of tartar emetic, divided into two equal parts—one of which I gave, and in the space of fifteen minutes it produced slight nausea. Next day before breakfast, I gave the same patient sixty grains of the spiræa with one of tartar emetic, in two equal doses, in the space of fifteen minutes: this also, only produced nausea, which I attributed to the antimony. I combined sixty grains of the spiræa with two of tartar emetic, and gave it to a patient before breakfast: this produced slight vomiting, which we must likewise, I think, ascribe to the antimony. I repeated the same dose, on eight other occasions, in different individuals, and produced vomiting only three times.

These experiments I deemed sufficient to prove my position.

Experiments with the extract of the Spiræa Trifoliata.

I dissolved of the extract (obtained in the manner before mentioned,) six grains, in two ounces of water, and gave a patient of the solution, half an ounce every fifteen minutes, until he had taken the whole of the six grains. It proved inert.

Experiment 2d. I put up ten grains of the extract, divided into four pills, one of which I administered every fifteen minutes; the result was as before. The same quantity was several times repeated in the same manner, without in any one instance having the slightest effect. Finding that the active principle did not exist in this preparation, I concluded it must be in the resinous portion taken up by the æther. I therefore, evaporated the æther, in which the

spiræa had been macerated, to dryness, and prescribed it in the dose of from one grain to twenty, without any effect.

Experiments with the vinous tincture of the Spiræa Trifoliata.

I commenced by giving four drachms of the tincture every fifteen minutes, for one hour: it made no impression whatever. I gave to another patient one ounce every fifteen minutes, until he had taken half a pint, without any effect. The infusion I also found perfectly inert.

This article has been spoken of as being an excellent tonic. To ascertain this fact, I prescribed it in a number of cases of intermittent fever, commencing with a small quantity, increasing it to one drachm every two hours. To give it a full and perfect trial, I continued the article in some cases two weeks, though without any advantage.

WE have much pleasure in presenting to our readers the ensuing essay, in which is traced with considerable success, the natural, botanical, economical, and medical history of the potatoe. It is the production of one of our pupils, who was led, at our suggestion, to the investigation of the subject, more particularly with a view of testing by further experiments, the validity of some recent reports by Dr. Latham, of London, relative to the medicinal powers of an extract from the leaves of this vegetable. These reports, we regret, have not been confirmed, and can only account for the discrepancy in the result, by supposing, that the potatoe, as so commonly happens with regard to plants, has undergone a change in this country, by which its narcotic principle is lost, or impaired, from the influence of climate, or peculiarity of culture, &c.

EDITOR.

ART. III. *An Essay on the Solanum Tuberosum.* By H. C.
 WORSHAM, M. D.

THE *solanum tuberosum*, according to botanical writers, belongs to the class pentandria, order monogynia, and of the natural family luridæ of Linnæus, and solanæ of Jussieu. It is known by the following characters.

“Root bearing tubers. Stem herbaceous, not armed, segments of the leaves unequal, alternate—pedicles pointed, corolla five—angular.”

The natural history of this plant, seems not so well settled as its botanical characters. Its discovery and native history are, indeed, involved in doubt and obscurity, and rendered still more intricate to trace, from the little attention they have received. That the history of this important vegetable, which now forms alike the “rich man’s luxury, and the poor man’s bread,” should not in common with other subjects of less interest, have received the attention of the naturalist, is a circumstance not readily to be explained. It is, however, generally believed to have been indigenous to this country, as far as I can determine, from the few vague and unconnected remarks to be met with in different authors. Yet there are not wanting others, who assert the contrary, and consider it to have had its origin in South America—among those are Cicca, Gomana, and Acosta, who wrote about the middle of the sixteenth century, and by whom we are told, that the inhabitants of Quito and its vicinity, have beside maize, a tuberous root, which they eat and call papas. Clusius supposed this to be the *convolvulus battata*, which he received from Flanders in 1598, during his residence at Vienna, under the name of *taratoufli*, an appellation by which the Italians distinguish all tuberous roots—and this conjecture appears to be confirmed by travellers, who have since visited that country. If this had been the *solanum tuberosum*, how, as Clusius asks, “could the knowledge of it have been so long in reaching us?” and continues he, “how could they have been ignorant of it at Padua, until I sent it from Frankfort.”

In his characters of the kings of England, Holt describes the introduction of this plant into Ireland, to Sir John Hawkins, who brought it from Santa Fe, as early as the year 1565. But little foundation existed for such an assertion, as appears from his own description. It is, doubtless, the convolvulus to which he alludes, as we have no account of the Virginia potatoe so early as that period. I state this upon the authority of Miller, as I have not been able to lay my hands upon the description alluded to—which may, however, be seen by reference to the Gentleman's Magazine, for the year 1789. From the most authentic accounts, it would appear, that the potatoe now so extensively cultivated on the continent of Europe, was carried thither by Sir Walter Raleigh on his return from Virginia, in the year 1586. There is some doubt, however, whether Sir Walter actually carried it, or that it was afterwards sent to him by Thomas Greenville, or M'Lane, the first governor of Virginia. Mr. Thomas Herriot, one of the colonists who went out with them, wrote an account of the root called openawk, which he describes in the following manner. "The roots are round, some as large as a walnut, others much larger: they grow in a damp soil, many hanging together as if fixed on ropes, they are good food either boiled or roasted."

It is plainly to be seen from this description, that the root under consideration, is the one to which he alludes, and that openawk is nothing more than the Indian name for the potatoe. The authority, however, for the fact does not rest with those writers. We are told by Gerarde, that he received roots from Virginia, in 1597, called norembege, which prospered as well in his garden, as in their own native country. He called them Virginia potatoes, to distinguish them from the convolvulus battata, which was at that time much better known, and called potatoes, from the Spanish name battata. He thus describes them. "The root is thick, fat, and tuberous, not much differing in shape, colour, or taste, from the common potatoe, saving that the roots are not so great nor long, some of them round as a ball, some egg fashion, some longer, others shorter. It groweth naturally in Ame-

rica, where it was discovered." Bauken also observes, that the potatoes came from Virginia into England, thence into France, and other countries.

Writers are not sufficiently agreed, as to the time when the potatoe was introduced into Europe. It was certainly cultivated and used for food by the Irish, long before its utility was known in England. It is stated by Mr. Campbell to have been introduced into Ireland about the year 1610, and by Miller as late as the year 1623. Why they should have assigned so late a period to its introduction, is not easily accounted for, when we are informed by Gerarde, that he cultivated it in 1597. It is no easy matter to reconcile the statements of those different authors, much less to divest the subject of that obscurity, with which it seems to be enveloped. The most generally received opinion, and that which is substantiated by far the greater mass of evidence, ascribes its introduction to Sir Walter Raleigh on his return from Virginia, in 1586. Gouge in his edition of Camden's *Brittania*, states, that Raleigh planted the potatoe at his residence, Youghhall, in the county of Cork. An anecdote is also related of his gardener, which sheds such additional light upon the introduction of the potatoe into Ireland, that I hope I shall be excused the liberty of transcribing it. On his return he gave some of the potatoes to his gardener, as a fine fruit from America, and ordered them to be planted in his kitchen garden. In August the plants flowered, and in September produced the fruit. But the berries were so different from what the gardener expected, that in an ill humour he carried the potatoe apples to his master, and is this (said he,) the fine fruit from America you praised so highly? Sir Walter either was, or pretended to be ignorant of the matter, and desired the gardener, since that was the case, to dig up the weed and throw it away. The gardener, however, soon returned with a fine parcel of potatoes. I have thus been particular in introducing this anecdote, because it clearly shows that the potatoe could not have been generally known at that time. It will also be perceived by Sir Walter's instructions, the high importance

in which he held it, as well as the attention he wished it to receive, by specifying the spot where it was to be planted.

The potatoe from Ireland, gradually made its way into England, as some say, by the accidental shipwreck of a vessel on the coast of North Melos, in the county of Lancashire, a place even now famous for the production of this vegetable in the greatest perfection. Its cultivation was for some considerable time confined to this section of country. Nearly half a century elapsed before it received any attention in the vicinity of London—and it was considered even then, as a mere article of luxury, without any conception of the vast utility that would arise from bringing it into general use. Such, indeed, was the little attention it received, that it lingered in obscurity until the year 1662, when the Royal Society considered it as an article of national importance, and recommended its general cultivation. The potatoe did not make its way into France as early as might have been expected, from the high recommendations it received in England. Lister, in his journey to Paris, in 1698, informs us, that the potatoe at that time was scarcely to be found in the French markets. Its fortune there, appears to have been various, and determined very much by the sudden revolutions which have particularly characterized that nation. Miller tells us, that it was not much cultivated till the year 1742—and in 1749, it fell into contempt—and its cultivation left wholly to the lower class of people. Its importance, however, soon began to revive, and claim a general notice, when, by a sudden fluctuation of opinion, it again lost its reputation. Yet it was not doomed to slumber long, for the necessities of the people had driven them to invention, and they were willing to seize upon any thing that would be likely to resist the ingress of famine. The prejudices against its introduction still, however, continued, amidst this vacillation of opinion, until the production of bread made from the farina of the potatoe in combination with wheaten flour. This at least, gained for it a temporary reputation, and seemed to insure it a durable existence, though there was still something wanting to fix its character as a

wholesome article of food—which was reserved for Parmen-tier, who, in 1778, brought forth a specimen of bread from the farina of the potatoe alone. In Germany its fortune was not so precarious.* It appears readily to have paved its way, and to have been cultivated as early as the year 1601—since, Clusius says, *ea plerisque Germaniæ hortis satis vulgario dudum facta*. In Italy its fate was nearly allied to that experienced in France: so great, indeed, were the prejudices which it had to encounter, that, we are told, a ship load of the roots having been sent from England to Naples, to relieve the inhabitants of that place, who were then the victims of famine and disease, the mere name of potatoe, as food, carried with it such dread, that they chose rather to bear the horrors of their situation, than purchase the article. But happily for that portion of country, those prejudices gave way to the magic wand of science, and the potatoe now supplies the food of those wretched vagrants, who were before doomed to subsist on the watery gourd.

In Scotland, Sweden, and Burgundy, it had to contend alike with the obstacles which had so long opposed it. But it is gratifying to learn, that the potatoe is ultimately finding its way into the remotest corners of the earth, and is now, nearly every where, cultivated for the benefit of mankind.

Esculent Properties.

The reputation of the potatoe, as an esculent, wholesome vegetable, is too well established, as has been already intimated, to require any further attention from me. Its use for food appears to have been co-existent with its discovery: we can find at least, in its early history, no trace of its application to any other purpose. Especial objections, however, were formed against it on account of its place among the solana. In Burgundy, we are told, its culture was interdicted in consequence of its supposed mischievous properties. Among the fancied effects produced by it, were leprosy and dysentery. Those prejudices, no doubt, origi-

nated from its exposure to the sun and weather, by which its natural qualities were destroyed, as the means of preserving it were, at that time, very little understood. Many accounts of its injurious effects are to be met with. But such representations do not prove the unwholesomeness of the root, since it has constituted the chief article of food to vast numbers of people for upwards of a century. The dependence of England and Ireland upon it for food, is such, indeed, that it is emphatically stiled the "bread root" of those countries. Nor is it much less extensively raised in the highlands of Scotland, where scarcity or famine was too frequent an occurrence before its introduction. It is said, that many of the inhabitants of Banff, a small district in that country, in the year 1783, must have fallen victims to famine, had not the potatoe been supplied. In Wales, its cultivation has become general, as we are told, that potatoes and barley bread form the chief sustenance of the poor—and what at this time occasions the calamitous situation of Ireland, save the failure of this important crop? Two millions of people are by this circumstance deprived of the very sustenance of life, and destined to drag out an existence, at best intolerable. Even in the early history of this vegetable, we find the attachment of the Irish to it strongly marked, and the fancy of the poet inspired to celebrate its praises.

"Leek to the Welsh,—to Dutchmen butter's dear,
Of Irish swains potatoe is the cheer."

The success which now attends the rearing of this vegetable could not have been anticipated, even by the most sanguine, from the many formidable obstacles over which it had to triumph.

Having its origin in a warm climate, it was supposed to be intolerant of cold, and upon that account, incapable of cultivation in more northern climes. But experience has shown the contrary, and the potatoe is naturalized almost in every region. With the lower classes of people, it is one

of the greatest blessings that the soil produces, forming "flour without a mill, and bread without an oven," and at all seasons of the year, an agreeable, wholesome dish, unaided by expensive or injurious condiments. What resources does the potatoe present to us? Its stalk, considered as a textile plant, furnishes in Austria a sort of flax—when burned it yields much potash—its apples when ripe and crushed, ferment and give spirits by distillation—its tubercles made into a pulp, are a substitute for soap, in bleaching. Cooked by steam, the potatoe is most healthy food. By different manipulations it furnishes two kinds of flour—a gruel and a parenchyma, which may be applied to increase the bulk of bread made from grain. Treated chemically, it is converted into beer, vinegar, spirits, &c.

It will be perceived, that the potatoe is susceptible of a very wide and diversified application, and highly deserving the attention of the agriculturist. Numerous experiments have already been commenced, and considerably extended on the farina of this vegetable, and by which it appears to be equal in nutritious properties to that of any other article. From some comparative experiments by Mr. Whately, of Cork, it is plainly shown, that the same quantity of land cultivated in potatoes, will produce one half more farina, than the same land applied to the production of farina from wheat. He also appropriated the farina of this root to the making of bread, biscuit, and pastry, with different proportions of flour, and found that they resisted better the effect of climate, than when made wholly of wheaten flour. It seems, indeed, to have a remarkable power of preservation, as Mr. Whately states, he has known the flour to keep good seventeen years. The farina possessing all the nutritious parts of the potatoe, and being perfectly bland and digestible in its nature, may be supposed to form an excellent article of diet for the sick. In the shops of Europe, a composition vended under the title of somolina, and recommended as a nutritious diet for children and sick persons, is said to be essentially, the farina of potatoes.

It is obvious, from what has been stated above, that the potatoe does not hold its reputation, exclusively, as an article of diet. The potash in such quantities has been obtained from the combustion of its leaves, that it is supposed from the facility with which the process is effected, that France will be released in a great degree from the heavy sum she pays this country, in the purchase of that article. It also appears by the experiments of Dr. Anderson, that ardent spirits in considerable quantity may be obtained from the distillation of the potatoe. From seventy pounds of the bruised roots, he obtained one gallon of pure spirits, considerably above proof, and about a quart below proof. The potatoe has also been made the subject of analysis, by several distinguished chemists, among whom is Vauquelin, who from a careful investigation, drew as a conclusion, that the potatoe was composed of starch, of parenchyma, of a peculiar animal matter, and of certain salts. The existence of these principles does not explain the cause of the spiritous fermentation which they undergo when exposed in the ordinary manner to a requisite temperature. It became then a desideratum to discover the substance which, in the potatoe, supplies the place of saccharine matter, to which alone this peculiar process is conceived to be owing. By a well regulated set of experiments, made by Dr. Reshier, it is shown to contain sugar and gum, in the proportion of sixty-four grains of mucous sugar, to two hundred and twenty grains of gum in the pound. It also appears from the experiments of Vauquelin, that resin and animalized matter are the only sapid ingredients of the potatoe, and give it the superior flavour, perceived when the article is eaten roasted, and which is necessarily lost by boiling.

The Medical Properties.

The potatoe plant, as far as can be determined from its obscure history, has never received the attention of the pharmaceutist, until a few years ago. Contrary to the generally received notions upon the subject, it has recently been ushered forth with the sanction of a great name, as

possessing very active medicinal properties. The experiments of Dr. Latham, president of the Royal College of Physicians of London, go to prove, that the leaves of this plant are endowed with a highly narcotic principle, deserving a place of no mean rank in the ample and already extensive catalogue of our remedial resources. It would seem to have farther claims on our attention, from its position among the solana, to which it is not a little allied by botanical affinity. Hence, it might reasonably be supposed to possess analogous properties. But experiments were wanting to fix its character accurately, as an article of the *materia medica*. The distinguished authority already alluded to, feels no hesitation whatever in declaring it superior to the *hyosciamus*, or *conium maculatum*, and recommends it in a tone of confidence to general adoption.

With one pound of the extract obtained from seven of the leaves, he commenced a series of experiments, in various chronic diseases—in protracted coughs, chronic rheumatism—*angina pectoris*—*cephalgia*—in a case of calculus lodged in the ureter, and in cancer of the uterus—many of which cases were either entirely cured, or much benefited by its use. The nervous symptoms, which generally accompany the administration of this class of remedies, were remarkably evident in the patients to whom the extract was given: and in many instances, the dose could not be increased above a few grains, without producing distressing effects which, indeed, seemed to threaten the most serious consequences. The operation of the medicine, and the effects, remarked, were very analogous to those produced by *digitalis*. I should be happy were I permitted by the result of my inquiries, to add my testimony to the preceding unqualified commendations of this medicine. My experiments were undertaken under every variety of circumstances, calculated to insure success, and I was cheered in my investigations by the pleasing prospect of contributing to enrich the *materia medica* with an important article. But from the disappointment which constantly attended me, I

was led to abandon this animating hope, and witness with chagrin the impotency of a medicine, to which my attention had been directed, at the instance of a distinguished writer. It too frequently happens, that we are seduced into such wild reveries, and sportings of the imagination, and sometimes even to sanction the most daring innovation, by the imposing signet of a great name. But fortunately for the improvement of our science, the light of intelligence, and the spirit of investigation have exposed these illusions, and the medical practitioner is now content to travel silently on, and search for himself. The results of my experiments are, indeed, conclusive to myself, that the extract of the potatoe is possessed of little or no medical properties. I had an extract prepared at four different times, by two gentlemen, who observed the greatest care, and whose knowledge of the process cannot be doubted. They assured me it had been prepared in a water bath, and was as good as could be made. Reposing the most implicit confidence in the accuracy of their statements, I commenced with one grain of the extract upon myself, in perfect health, and clear of any affection of the head. My pulse seventy. I increased the dose every fifteen minutes, and examined the operation on my pulse. Not the slightest alteration either in that or my feelings could be perceived. Nearly thirty grains had been taken, and finding no effect whatever, I thought it unnecessary to push it farther, as four grains, according to Dr. Latham, had produced great distress. Anxious to give the remedy a fair trial, I requested the apothecary to prepare me some more, thinking that the first, probably, might not have been good. He accordingly did so. I began with one grain, repeating it every ten minutes, until I had taken nearly a hundred, without being able to detect the least variation either in my pulse or feelings. Meeting with this disappointment, I was naturally led to suspect the inefficacy of the extract, though still determined to persist in my investigation. Relating the result of my experiments to my friend Mr. Biddle, and expressing to him my fears, with respect to the preparation of the extract, he very politely offered to

have some made, and assured me that nothing should be wanting to render it of superior quality. He very soon gave it to me, and from the appearance of it, as described by Dr. Latham, I had no doubt of its excellence. I began with three grains repeated every ten minutes, until nearly two hundred had been taken, without exciting any distress, except a little nausea, which I attributed to the taste of the extract, and its being taken on an empty stomach—my pulse was a little diminished in frequency, no doubt, occasioned by the nausea existing.—I requested Mr. Dick, jr. of the University, to take the extract, which he obligingly did. I gave him five grains every ten minutes, and as often examined his pulse. He complained very much of its nauseating effect, which I conceived to be more imaginary than otherwise—as he took subsequently nearly a hundred grains without complaining of any uneasiness, indicative of power in the article. It is necessary for me to state, that my appetite during the whole course of my experiments remained unimpaired, and my digestive organs not at all affected. I procured two rabbits nearly three weeks old, to each of which I gave a drachm of the extract in divided doses, without any perceptible change. They ate and were as lively as usual. During my stay in the Alms House, I had a fair opportunity of testing the efficacy of the extract, and carefully selected those cases, in which it had been particularly celebrated. From the report of the patients, I was led, at one time, to anticipate a very favourable result, and reposed no small degree of confidence in its powers. But, subsequent experience pointed out the inaccuracy of my observation, and led me to detect the fallacy of those who became the subject of my clinical experiments. Justice, however, requires of me to state the nature of those cases, as well as the salutary effect supposed to have been produced. The first case in which the extract was administered, was a glandular swelling of the neck, believed to be scrofulous. The parotid and submaxillary glands were very much enlarged, and presented a hard indurated tumour. As usual in such cases, the patient was ordered

the extract of cicuta, three times a day, and continued this course for nearly two months, without any obvious improvement. His head became very much affected, and the medicine was abandoned. As he was then under no medical treatment, I was permitted to try the extract of the potatoe. He was given one grain three times a day, and the dose gradually increased to twenty, without at all distressing him. After a short time, I discovered the swelling of the parotid glands was somewhat diminished, and they continued gradually to decrease, until they regained their natural size. The submaxillary glands were not at all reduced, nor changed in feeling. It would appear from the statement of this case, that the potatoe was of some advantage—but, does it not follow, that if it had produced any influence over the scrofulous swelling of the glands, that it would have operated equally favourably on others, similarly affected? I by no means pretend to account for the peculiarity of its operation, nor am I convinced, that it had any effect in the reduction of those glands—it was tried extensively in another case of scrofula, without the least effect, or even disturbance of the patient's feelings. The next case, in which the extract was given, was that of a child, eight months old, supposed to have some syphiloid affection from its parents. It was admitted in the month of May, very much emaciated, with eruptions of a pustular nature, covering its scalp, together with two large tumours, situated near the fontanellas. It had not been in the ward long, before the eruptions became general over its system, of a very scabby nature. The tumours on the head had opened, and discharged a considerable quantity of matter, resembling sanies. While in this situation, it came under the charge of Dr. Gibson, who ordered it one fourth of a grain of calomel, twice a day, and citron ointment as a local application to its head: it being much debilitated, it was also given Huxam's tincture of bark. This course was continued for nearly a month, without any advantage—and was then abandoned. I was anxious to give the article a trial in this case, and commenced with half a grain of the extract,

with one of rhubarb, three times a day. This plan had not been pursued long before the eruption seemed to disappear, but the rhubarb so much affected the bowels that it was discontinued. The general health was not at all improved. The extract was then given, combined with bark and other tonics. The eruption under this course disappeared, and the child became convalescent. I used it also in many other chronic diseases, particularly in common rheumatism, and the rheumatic affections consequent on syphilis—cases in which Dr. Latham particularly recommends it, without deriving the least benefit from its exhibition. The dose, in various instances, was increased to twenty and thirty grains, four times a day. Candour, however, compels me to acknowledge, that many of those symptoms which generally arise from the narcotic medicines, were complained of by the patients—yet I am by no means disposed to rely on such statements, as I am fully convinced that very little confidence can be placed in those vagrants, residents of the Alms House. Indeed, I have heard them as often confess the presence of such symptoms from the exhibition of bread in disguise. It is, at least, manifest, that had the medicine been endowed with the wonderful properties alleged, it must have wrought some unequivocal effect. The extract of potatoe on the whole must, I conceive, be now regarded, if not wholly inert, at least far inferior to cicuta, or any other article of the same class, retained in the materia medica. Why then should we endeavour to store our materia medica with useless lumber, and add uncertainty to a set of remedies, that already begin to decline in the confidence of physicians?

ART. IV. *An Examination of some Medical Doctrines, compared with those of Dr. Broussais.* By M. A. FODERA, M. D. Paris, 1821. Translated from the French, by ROBERT E. GRIFFITH, M. D.—(Continued from No. 10.)

Causes that have misled Pathologists, and induced them to neglect the study of the relation of Diseased Functions, with their respective Organs.

WE have now traced the progress of the knowledge of diseases during the last centuries, and next we shall attempt to show, that the physiological direction then given to the study was abandoned, again to be revived in our own age with new ardour, and on better foundations, aided by numerous and well authenticated facts.

Half a century after Sydenham had expressed the wish, that the same method of classification, which had so much facilitated the study of botany, should be introduced in that of diseases, Sauvage executed the idea of the English practitioner. But instead of simplifying the study, he has still more embarrassed it, by placing in an arbitrary order, those diseases he should have classed according to organs and functions, as they occur in man, and those animals which most resemble him.

The first care of these classifying pathologists, was to make species, genera, orders, classes and families—to accomplish which, they paid attention only to the groups of symptoms, combined according to the will and pleasure of each author—thus creating thousands of diseases from a comparatively small number of real affections.

Classifications in botany and zoology, are absolutely necessary, to arrive at the true determination of an individual species, amidst the immense number that nature exhibits. This is accomplished by the constant and fixed characters, which the exterior of these species invariably presents. Though the number of diseases is not considerable, and there is no obstacle in reality, to the adoption of an arrangement in the study of them, yet the signs and symp-

toms are not permanent or constant—their true character being variable, and changing according to the age, sex, individual sensibility, temperament, moral influence, season, climate, mode of treatment, &c.—which variability must, necessarily, produce vagueness and hesitation in the determination and description of a disease.

By following his own observations, each author would give a different account of the same disease: finding symptoms, which not agreeing with any hitherto described, he would be forced to create a distinct species. Being thus differently and variously determined, the apparent number would be augmented, and present fallacious distinctions in the genera and species. We see, accordingly, in glancing over the classifications and descriptions which have been given of diseases, that many apparently different species are in reality the same. It is scarcely necessary to remark, that conformably to the plan of classification adopted by each author, the same disease is sometimes placed in one class or order, sometimes in another; and that next a disorder of an organ anatomically, physiologically, and pathologically connected with that which is the seat of the disease, we have an affection of a distant organ. Thus, a diseased organ finds itself allied with one with which it has no affinity, and separated from that which has partaken of its diseases, through the intimate relation of their functions and organization.

We will give an example from the best of these classifications, as founded on the organization and functions of membranes—namely, that of the illustrious author of the “*Nosographie Philosophique*.” In this arrangement peritonitis, pleuritis and arachnitis, are classed together—whilst the peritoneum is generally affected with the abdominal viscera—the pleura with the lungs and thoracic organs, and the arachnoid with the brain, the latter is seldom attacked at the same time as the pleura or peritoneum, and vice versa. But what is the most absurd in these classifications, is to find the same disease of a particular organ, placed sometimes in one class, sometimes in another, according as it is

in an acute or chronic state, inflammatory or hæmorrhagic, vascular or nervous, or according as the structure of the organ is healthy, or apparently changed by disease. How can we with propriety, separate the diseases of an organ, merely because they are acute or chronic, when as is well known, Hippocrates has observed, that an acute disease may become chronic? Or make the distinction of inflammatory and hæmorrhagic, when the most celebrated practitioners have admitted the close resemblance of these types of disease, one of which often induces the other—or even into vascular and nervous, when the diagnostic symptoms can rarely be perceived, and dissection proves the slight foundation for it by showing, in individuals, presenting the same group of symptoms, a greater or less degree of disorder in their organization, constituting a vascular disease, or, without any apparent change, a nervous disorder. In fine, this morbid change or apparent soundness of organization, is not a sufficient cause for separating diseases of an organ, since ordinarily the acute stage induces little alteration in the organization of a diseased part, whilst the chronic on the contrary, causes a morbid and anomalous nutrition, and in time effects a remarkable alteration in the part.

These errors are more or less numerous, and marked according as the classification approaches, or recedes from the truth, or in other words, from that arrangement in which the diseases of organs anatomically and physiologically allied, forming a natural group, concurring in the same functions, are associated. As an example, all that is found in the encephalic cavity, or the spinal canal, should be studied in conjunction, for the brain and spinal marrow with their membranes, constitute a whole, which cannot be advantageously studied by the common mode, without separating parts that are almost universally affected at the same time. It is also difficult to distinguish and characterize these diseases by the symptoms, on account of their close resemblance, whether the morbid action exists in the membranes or in the nervous mass. The same remarks apply to the respiratory, gastric and generative organs.

The vicious plan so much followed, of contemplating diseases in divisions and subdivisions, has rendered the study of the medical art more arduous—which would not be the case, were they classed in a clear and scientific manner.

The pathologist may be assured, that the difficulty of thus properly classing them, is not as great as might be imagined. They may be arranged scientifically, and perspicuously, if attention be paid to the regulating systems of the vital functions, without which, indeed, the whole work must be at best imperfect.

The manner of studying, by classing and distinguishing diseases, by means of symptoms differently combined, will turn the mind from the true path it had commenced—taking, that of considering symptoms as derangements of diseased organs, and of tracing diseases to their origin or seat: on the contrary, by not bearing in mind the correspondence between the symptoms and their source, it clearly results, that little good can be derived from dissections. To be convinced of the truth of our statement, it is only necessary to advert to the classifications of Sauvages, Linnæus, Vogel, Macbride, Segar, Cullen, Plouquet, Pinel, Frank, &c. to see that the foundations of their arrangements differ as much as their classes, orders, genera and species, are various, even in the number of each. It is almost superfluous to recur to particular examples, and we shall content ourselves with remarking, that of genera alone, Sauvages makes three hundred and fifteen—Vogel, five hundred and sixty—and Cullen, three hundred and thirty-three, &c.

The little attention paid to the relation of diseased actions, to organs in which they are situated, is the cause of the slight advantage hitherto received from dissections in increasing our pathological knowledge.—Two examples only, we shall cite to prove, that although authors had the facts before them, they have made deductions of comparatively little importance to the advancement of pathology. Camper, in his dissections of animals, that died of the “epizootic,” at Groningen, found not only that the organs of the thorax were diseased, but also those of the abdomen,

and particularly the alimentary canal. The conclusion he deduced was, that the disease had its seat in the respiratory organs, and the inflammation of the alimentary canal, though it generally occurred, he considered as worthy of little regard. In his lectures on this disease, whilst giving an account of a horse which died of it, and in which he found an inflamed state of the bowels, he observes, "it generally appears to be the cause of the death of all animals." Thus, after his declaration, that an inflammation of the alimentary canal is usually the cause of the death of animals, and is consequently an affection which is complicated with every other disease, instead of drawing the just and proper conclusion, that in animals, the digestive functions are affected whenever dangerously attacked, he passes it over as an indifferent circumstance. This reasoning, so feeble and unworthy of so great a physiologist as Camper, is analogous to that of a large number of the physicians of the present day. As regards contagious diseases, we think, that according to the facts recorded by the best observers, the poison which causes them may attack any organ of the living system, though it affects some one organ more particularly than the others: consequently, physicians instead of regarding them as identical diseases, ought to be attentive to the symptoms of the different organs, in order to deduce the most rational and efficient mode of treatment.

In their work "*De Morbo Mucoso*," Roederer and Wagler allege the proximate cause of the disease they describe, to be an affection of the mucous cryptæ—yet, they allow in many passages of it, that they constantly found in all the bodies they examined during the reigning epidemic, an inflammation of the digestive canal. These celebrated authors, however, instead of concluding that the inflammation of the mucous membrane in this epidemic, was accompanied with a great secretion of mucus, have neglected the principal disease, merely to consider that of the cryptæ—as if when the mucous membrane is affected, these cryptæ can be exempted. Nevertheless it must be allowed, that during this period of time, and in spite of all these errors,

some remarkable monographies have appeared. We will only cite that of Casimir Medicus, on periodic disorders unaccompanied by fevers. In this excellent work, he endeavours to demonstrate, that such diseases have a certain affinity to intermittents, and that most of them are located in the stomach or intestinal canal, and that they depend on the same causes as periodic fevers—differing only in their progress, and the form under which they appear. In relation to the nature of periodic diseases unaccompanied with fever, and of intermittents, we believe from the character of their symptoms, that the one depends on an intermittent inflammation, and the other on some species of periodic irritation, which, however, does not amount to inflammation—while at other times they are complicated with fever, as is the case in intermittents, combined with syncope, lethargy, convulsions, &c.

In what way the proper method of considering diseases was again resumed. Labours of Prost.

Next we shall examine in what way the true method of studying diseases, came again to be adopted. We are strongly induced to believe, that Prost was well acquainted with the works of Rega, from the importance he assigns to the sympathies, especially the gastric, and what corroborates the presumption is, the circumstance of his choosing this subject for his thesis. Compelled, however, to study the subject more closely, and finding that his observations verified those that the celebrated pathologist of Louvaine had given in his simple though excellent work, he was fully convinced, that no fever existed without an accompanying inflammation of the alimentary canal. In his work, "*La médecine éclairée par l'observation et l'ouverture des corps,*" it is evident what importance he gave to the gastric organs—what an extensive influence he allows them in the production of diseases—how the derangement of these organs induces disorders in others, particularly in the nervous—and how much diseases are under the influence of the sympathies existing in these parts.

His “*Essai sur la sensibilité*,” and “*Coup d’oeil sur la folie*,” also contain proofs of the importance he accords to the digestive organs. As regards the seat and nature of fevers, and the influence of the gastric viscera in the production of nervous disorders, we will subjoin some passages from the work first quoted, or rather the general conclusions he deduces from observations and dissections. “The mucous membrane of the intestines,” says he, in the preface, “has appeared to me to merit great attention, and I have constantly observed that of the organs of digestion with great care. This, though an extremely disgusting labour, will sooner or later, give a solid basis to medicine. It is difficult and almost impossible to describe with precision, the multitude of alterations that take place in these organs, which, however, correspond to the symptoms of the greater part of diseases. I have opened at least one hundred and fifty bodies of patients, who died of ataxic fevers, without finding any thing peculiar in the brain: but have always seen inflammation of the mucous membrane of the intestines, either with or without erosions. These inflammations appeared to me to correspond to the nature of the substances contained in the viscera, with the changes of the bile, or intestinal mucus—with those of the liver, spleen, mesenteric glands, kidneys, pancreas, bladder, and the cellular tissue adjacent to the peritoneum.

“I afterwards ascertained, 1st. That inflammations of the internal surface of the intestines, can exist without the peritoneal tunic participating therein. 2d. That they can take place without exciting pain. 3d. That they produce a derangement of the animal functions. 4th. That this derangement is correspondent to the intensity of the inflammation, the vehemence and nature of the exciting cause, to the temperament, climate, age, season, &c.”

He afterwards adds, “I believe I can establish as axioms: 1st. That the irritation of the mucous membrane of the intestines is communicated to the animal centre without pain, but that the excitement, agitation, and disorder of these functions, are in exact relation to the sensibility of

the organs to the exciting causes, or to the natural disposition or sensibility of the individual.

“2d. That the disorders of these viscera have more influence on the brain, in proportion as their arterial system is developed, the red blood abundant, and the irritating cause active.

“3d. That the pain in the abdomen depends on the state of inflammation of the peritoneum, or of the cellular tissue which envelopes it.

“4th. That inflammations of the internal membrane of the intestines are frequently communicated to the peritoneum when great, though this latter membrane may also be diseased, without the mucous being affected.

“5th. That the prostration in the vital functions results from the absence of red blood in the mucous membrane of the intestines, whether this takes place from a thickening, callosity, fungosity, infiltration, or ulceration of the membrane.

“6th. That the alterations of the intestines with or without phlogosis, are in exact relation to the last symptoms in the animal functions, which precede death.”

In the fifteen first paragraphs of his introduction, Prost establishes, (in the form of interrogatories,) that all diseases depend on organization—that the arteries and nerves are the active agents in diseases—that the sensibility or the excitement of a function is proportioned to the arterial development—that the nervous and sanguineous systems have a reciprocal dependence—that irritation is the cause of action in the capillaries, and the means of determining an afflux of humors—that the disposition of organs to inflame, is according to their arterial development.

16th. He adds, “it is not because a part is weaker than those in a natural state, that it is more exposed to idiopathic or sympathetic inflammation, but rather, that the sanguineous and nervous systems are more developed in it. He afterwards observes, that sympathetic inflammations arise from a derangement of the exhalents, capillaries and nerves,

and that fever ensues, when this disorder is communicated to the heart."

"26th. The essential character of fevers proceeds from the degree in which the nervous system is affected: sometimes the arteries are principally attacked, and at other times the nerves. In the first case, it is termed inflammatory or angistenic: in the latter, its denominations should be taken from the alterations which cause it."

"27th. The muco-gastric, whether ataxis or adynamic, have their seat in the mucous membrane of the intestines—resulting from the various alterations of this membrane, and from the causes which produced, and still keep up these alterations.

"28th. Fever is either continued or intermittent: continued, when the irritating cause is constantly acting on the arterial and nervous systems: intermittent, when the excitement varies and appertains more particularly to the disorders of the functions of the skin and abdominal viscera.

"29th. No fever can exist without an accompanying irritation of the arteries and nerves. When the organic derangements to which they are owing, affect principally the pectoral viscera, and the limbs, the sanguineous system experiences great disorder: on the contrary, the nervous is principally disordered, when caused by alterations in the state of the skin, or the abdominal mucous membranes or glands."

He goes on to establish as doctrines, that disorders in the circulation carried to a certain extent, produces fever. But that a derangement of it can exist, without this taking place, as for instance in the neuroses.

"38th. The muco-gastric fevers, whether ataxic, adynamic or nervous," adds he, "manifest themselves by the symptoms they occasion.

"1st. By the different degrees of arterial development in the intestines.

"2d. By the nature of the alterations of the mucous membrane.

"3d. By the action of the bile, whether from its quantity or quality.

"4th. By the production of worms, and the irritation they occasion.

"5th. By the greater or lesser consistency of the matters which engorge the viscera.

"6th. By temperament, climate, season, and many other less remarkable circumstances.

"39th. Fever is simply inflammatory or angistenic, when the disorders that take place during its continuance, affect principally the pectoral viscera. Its predominant character is the abundance of blood, the augmented action of the heart, and disorder of the arteries. But the functions of animal life are almost untouched during its course, which arises from the little influence the thoracic viscera exercise on the functions of the brain.

"42d. The blood naturally flows where the arterial development is greatest, and the sensibility the most acute, so that the part which enjoys the greatest vitality, or most vivid sensibility, is ordinarily that which becomes the seat of sympathetic inflammations, with or without fever: the inflammatory state increases the susceptibility of the part affected, and the result is in exact relation to its connexion and dependence on the animal centre, to the exciting causes acting on the inflamed part, as well as the intensity of the inflammation. The numerous causes which irritate the arterial system in the abdomen, the great nervous surfaces which this part presents, the multitude of exciting causes acting on the viscera, produce the alterations they experience during the course of febrile diseases.

"43d. When the arterial system is strongly developed in the mucous membrane of the intestines, the blood abounds in the liver and in almost all of the abdominal viscera, whence results a greater excitement of the brain, and consequently a greater or less flow of blood to this organ. It is by means of the sympathies which exist between the different viscera, that their functions and diseases have so intimate a relation. It suffices to excite the intestines, to produce a corresponding one in the functions of the other abdominal viscera, and those of the animal centre. The

nerves and arteries are the agents of these sympathies, which are stronger in proportion as the arterial system takes part in the interior alterations of the intestines.

“44th. The sympathies of systems and organs give rise to the relations which take place between the organs. It is in the functions of the first, that those of the latter are to be studied—their derangements causing organic alterations, and which again augment the disorder of the functions.

“When disease takes place in an organ, its secretions are changed in their nature, and this change adds to the disease already existing: thus causes and effects are linked together, which act on and excite each other during the progress of of a disease.”

In treating subsequently of epilepsy, he observes, “The most part of the neuroses are attributable

“1st. To the greater or less sensibility of the mucous membrane of the intestines. 2d. To irritating causes acting on this membrane.

“These divers diseases, induced by the irritation of the nervous papillæ, by the excitement of the arterial system, and by ulcerations, differ from each other according to the degree of susceptibility of the internal surface of these viscera, and the nature of the alteration. The whole of the causes tend to two essential effects.

“1st. The increase of susceptibility in the intestines, and sympathetically in the brain.

“2d. A greater action of the liver, from which results a change in the quantity and quality of the bile.”

He adds, “all the neuroses are confounded one with another—their symptoms are mixed: those of apoplexy, of ataxy, of frenzy or madness, without loss of sensation, of catalepsy, of mania, frequently alternate. They arise from the same causes, of which they are only the consequences varied by particular circumstances, which are but the modifications of the fundamental cause.

“Susceptibility and its different degrees, irritation and its various causes, the natural or accidental vitality of all the organs, the greater or less development of those of the

abdomen, the disproportion of the functions of the liver, are all essential circumstances to be considered in epilepsy, and the other neuroses. As to the alterations which are seen in the bodies of persons dying of this disease, these are remarkable in the abdomen, consisting of changes in some one of the viscera—in the fluids and solids, in the thickening of the mucous membrane, in excrescences, in different erosions, in which the arterial system participates, the number of worms, the nature and quantity of matters contained in the intestines.”

• In treating of apoplexy, he says, “I cannot too often recall the observation of Bichat, given in the commencement of this work: ‘that nature, sparing in causes, is prodigal in results.’

• “The neuroses are intimately united, their various symptoms being combined, according to the greater or less degree of irritation of the nerves of the intestines: the differences result from accessory causes, but the principle is the same, and it ought to be the foundation of a theory of these diseases.”

• By these extracts, which contain the general result of his observations and dissections, we see that he considered the nature and seat of all fevers to consist in inflammation of the mucous membrane of the intestines, except in the case of simple inflammatory fever, which, according to him, has its origin in the pectoral viscera. We will only here remark, that having observed that the inflammation of the mucous membrane is not painful, he was the first who has given a pathological fact of great importance, in the diagnostic of diseases of the abdomen, and which is, that in general, whenever there is pain, it is the peritoneum which is affected. He has hence simplified the diagnostics of inflammations, of the serous and mucous membranes of the abdomen, a precision much wanted in our diagnostics of these diseases. Great effects he attributes to the irritations of the stomach, in the production of the neuroses, as mania, epilepsy, &c.

It is to be regretted, that Prost has filled his work with

vague and indefinite observations. His ideas on adynamic fevers, and on the action and influence of a great number of agents, considered as causes of derangements in the functions, during the continuance of fevers, are by no means fixed or precise: he wishes to prove, that these agents have a real influence, though what precise influence is not yet determined, and which indeed, can only be perceived in some particular cases of fever. This vagueness and want of care, manifested in his work, are the causes of the little attention it has received from the generality of physicians. Yet his writings contain a mass of new and profound observations, which render them truly valuable and interesting.

It now only remains for us to examine the last period, that of the new doctrine of Dr. Broussais. His excellent and learned work, on the chronic phlegmasiæ, appeared in 1808. He held at this time the common opinion as to the seat and nature of fevers—thus he expresses himself in a note to this work,* “the obscure phlogosis of the mucous membrane of the stomach and intestines, has nevertheless struck several modern cultivators of pathological anatomy. I shall cite particularly Prost, who, in his three works, 1st, *La Médecine éclairée par l'observation et l'ouverture des corps*; 2d, *Coup d'oeil sur la Folie*; 3d, *Essai sur la Sensibilité*, has attempted to prove, that the irritation of this membrane can exist for a length of time without local pain, that it produces disorder in the animal functions, and a crowd of diseases ordinarily attributed to other causes. This state appears so frequently, that he has not hesitated to attribute intermittents, all the ataxic fevers, and even mania, exclusively to an inflammation of the gastro intestinal mucous membrane.

“I have too often met with this membrane in a natural state, after the most malignant typhus, and I have seen too great a number of patients in this disease relieved by the

* *Histoire des Phlegmasies ou inflammations chroniques, &c.* Tom. II. pag. 7, 1st edition. Paris, 1808.

use of the most energetic stimuli, to acquiesce in the opinion of this physician as to the cause of ataxic fevers. The causes of mania are too numerous, those of intermittents too little known, as to their mode of action, for any practitioner to adopt the theory of Prost as to these diseases—but his observations and reflexions ought to be considered as tending to the progress of the medical art. I sincerely wish that he would call the attention of physicians to the disorders of the animal economy, which appertain to the kind of irritation he treats of. My work will show how much I have been struck with his observations, in the course of my military practice, and may perhaps, prove the possibility of classing diseases of the mucous membrane in a more satisfactory manner than has hitherto been done.”

In this note, though Dr. Broussais is far from admitting the ideas of Prost, which, as has already been said, are those which he now professes, even on insanity, nevertheless we see in the same work, that he was doubtful of the theories of modern authors of fever—for he had observed, that the groups of symptoms characteristic of ataxic and adynamic fevers, may arise from an inflammation of the mucous membrane or of the peritoneum. Attracted by the ideas of Prost, he profitted by them, and the dissections he had occasion to make afterwards, being executed with more care and attention, confirmed the assertions of Prost, and changed his own opinion, and hence the doctrine of fevers was viewed by him in a different light. He considers fevers to be of an inflammatory nature, and admits the seat of these diseases to be the stomach and small intestines, which include all the organs considered separately by Baglivi, Rega and Prost. The two first regarded fevers as gastritis, the latter as enteritis, and according to Broussais, the synonyme of fever is a gastro enteritic.

The new discoveries shedding a brilliant light on his doctrines, he gave rise to a pathology differing from all others then existing. It must be conceded, however, that Broussais, gifted by nature with a superior understanding,

has profited by the labours of his predecessors, in erecting his pathological system.

In the doctrine of Broussais, diseases are considered as having determinate seats: he does not admit of general diseases. According to him, diseases may be those of action, irritation, or of debility, though the generality are of the first class. He thinks, that the same assemblage of symptoms which indicate the disease of an organ, are always the effect of a disease of the same nature—that the acute and chronic inflammations are always diseases of irritation, that fevers in particular have a fixed seat, which is either in the stomach or small intestines, and he considers that they are of an inflammatory type.

Conformably to this doctrine, remedies are either stimulants or antiphlogistics. Broussais regards as the latter, detraction of blood, emollients, acidulated drinks, and other articles of a similar nature—while all other remedies are placed by him in the class of stimulants, such as emetics, purgatives, diaphoretics, tonics, &c. These latter remedies are prescribed in the smallest doses, for fear of irritating the stomach, and in their administration every care is taken to prevent gastric irritation: with the other class, the antiphlogistics, he is more profuse.

From this imperfect sketch, we may, however, perceive, that although the doctrine of Broussais agrees with the contra-stimulant theory, in general pathology, in considering the most part of diseases as those of action or irritation, and acute and chronic inflammations as diseases of stimulus, nevertheless, in particular pathology, there is scarcely a point of similarity. This is also the case in therapeutics—especially as regards the hardihood of the contra-stimulists, in the administration of the most heroic medicines, and the great circumspection in the adherents of the new doctrine, in giving even the smallest dose of a powerful medicine

Oportet cavere stomachi vexationem. LISTER.

It will be proper, as we have said a few words on the Italian doctrine, to examine that of Broussais, as presented

in his "Examin." Broussais has prematurely judged, and criticised the contra-stimulant doctrine, by taking as his ground work, what Tommasini has given to the world in his "Prolusiones." We believe that this theory cannot be justly appreciated until an *ex professo* work shall have been published, by the illustrious Rasori, in which he will establish the principles and completely develop the system, by making known his chain of facts. Nevertheless, the criticism he has made on the ideas of the Bolognian professor are not unjust, although he is incorrect in the manner in which he treats the Italian doctrine. Broussais does not appear to have exact ideas, as regards the opinions of the contra-stimulists on the action of remedies, for he overlooks the fine, profound, and luminous distinction, that the Italians make in the *modus operandi* of medicines—that they can act mechanically, chemically and dynamically: he even cites certain contra-stimulants erroneously, and among them opium, a remedy which is regarded by the Italian school as one of the most powerful stimulants.

(To be continued.)

ART. V. *An account of the Frankfort Mineral Springs, &c. &c.*

By DR. WILLIAM CHURCH, of Pittsburgh. Read before the Pittsburgh Medical Society. Communicated to the Editor.

THE Frankfort mineral springs, have lately acquired considerable celebrity for their medicinal properties. Debility consequent on an attack of bilious fever, induced me, on the 30th of August last, to visit the springs, where I remained ten days, during which time I made some experiments on the waters, and obtained some general information regarding them, the result of which I now do myself the pleasure of laying before the society.

I was informed by the oldest and most respectable inha-

bitants of the immediate neighbourhood, that the Indians formerly were in the habit of resorting to these springs, and drinking the water, which they reported, cured some diseases—and that deer and other animals, repaired to them in hordes, at certain seasons of the year.

About four years ago, Mrs. D. of the village of Frankfort, being much reduced by a liver complaint, and the remedies used for its removal, her stomach was so very weak and irritable, that it retained scarcely any medicine or nourishment, however mild, when a neighbour presented her with a bottle of water from Cave spring, and advised her to drink it. Confiding in its efficacy, she took on that day three or four glasses of it, and feeling her stomach somewhat relieved by it, she procured a bottle of the water every morning, which she consumed in the course of the day, and in a few weeks entirely recovered.

Mr. Stevens, aged then 66 years, the proprietor of the farm on which Cave spring is situated, was for the last four or five years, so affected by rheumatism, that he was unable to walk without the greatest difficulty, or attend to his affairs. Encouraged by the successful result of Mrs. D.'s case, he drank the waters, and used the cold shower bath once a day for two months, by which time, the pains and stiffness of his joints were so much relieved, that he was able to walk two or three miles daily, and to superintend his farm. On the 9th of September last, this gentleman, though in the 70th year of his age, drove myself and others in a *Dearborn* waggon, from his house to Pittsburgh, the distance twenty-seven miles. He is, indeed, astonishingly active and healthy.

By another circumstance, I was told, the fame of these waters was increased.

During the prevalence of a malignant dysentery, in the summer and autumn of 1819, persons and families, it is affirmed, who used them, entirely escaped the disease, and enjoyed good health throughout that very distressing season. The fact is easily to be explained. By its tonic, laxative, and diaphoretic effects, the water kept up the heal-

thy tone and condition of the stomach, liver, intestines, and skin, and in this way, counteracted the predisposing and exciting causes of the disease. The reputation of these waters is now pretty well established. Last season about thirty persons visited them, and this season upwards of two hundred—four-fifths of whom, I have reason to believe, were decidedly benefited.

Cave spring, which is the most considerable, and to which there is the greatest resort, is very romantically situated within a large cave, on the farm of Mr. John Stevens, in Hanover township, Beaver county, Pennsylvania, about twenty-six miles south-west of Pittsburgh, and about one mile and a half north-east of the village of Frankfort. The cave is a great natural curiosity. It is excavated by nature out of a large hill, and is about sixty feet below the surface of the earth. It is overhung, and in some places arched over with large flat rocks, which are covered with calcareous incrustations, strongly impregnated with the sulphates of iron and alum. In approaching the spring, it cannot be seen, until we are on the very verge of the precipice formed by the rocks which overhang the cave. The principal fountain issues in a considerable rill, from a fissure in the rock, about twenty feet above the bottom of the cave. It discharges about three pints of very clear and cool water a minute, or about twenty-two gallons and a half every hour. It has been observed that wet or dry weather does not increase or diminish the quantity discharged. The spring is approached by three different ways. First, on the south-west side, by descending about sixty or seventy steps, cut in the earth. Secondly, by a road on the north-west side, cut so as to wind into the cave under the arched rock, where the principal fountain empties itself, and where there is a platform, on which we stand to drink. The water is carried over this road in spouts, to supply the bath houses, built on the bottom of the cave.* Between these two roads, a

* Two small streams issue from fissures in the rock, and fall into the cave; the water of one is warmer than that of the other.

rivulet falls into the cave, over a precipice of about twenty-five feet, which gives the whole a most romantic and strikingly grand appearance.

The third way of approach to the spring, is from the Beaver road, up the brook which falls into the cave, and which is augmented by the spring: ascending this stream, which is overshadowed with large pine trees, for about the fourth of a mile, we enter the cave just opposite the cataract. The water deposits a thick yellowish brown sediment on that part of the rock over which it falls, and on the sides of the spout, and on the pebbles at the bottom of the stream, which issues from the spring. This sediment is calcareous matter and carbonate of iron. The water gives a permanent brown tinge to glass vessels, in which it is kept for a few hours, so much so, that they lose their pellucidity, which cannot be restored. On the very verge of the rocks which overhang the cave, and in that part of it which is not overhung by them, are large pine trees growing luxuriantly, several of which the proprietor has lately very untastefully cut down.

I made the following experiments on the water of Cave spring.

Experiment 1st. On the addition of lime water, a white precipitate was thrown down, which was soluble with effervescence in muriatic acid. This precipitate was the carbonate of lime, and indicated carbonic acid.

Experiment 2d. Tincture of galls gave the water a purplish colour, which in a few minutes changed to a purplish red. This indicated the presence of iron and sulphureted hydrogen gas: the water also exhales the peculiar odour of that gas. Having ascertained that the water contains carbonic acid and iron, the acid and the base of carbonate of iron—I infer that the iron detected by the galls is the carbonate. It also deposits carbonate of iron.

Experiment 3d. By adding a few drops of spirit of ammonia, a white precipitate was thrown down, which, upon rubbing between my fingers, and tasting, I found to be carbonate of magnesia.

Experiment 4th. On the addition of a few drops of the

solution of the nitrate of silver, a beautiful white cloud was immediately formed, which, after some time, fell to the bottom of the glass, when I poured off the water, and added a few drops of diluted sulphuric acid—upon which, muriatic acid gas was evidently evolved. This experiment I presume indicates the presence of muriate of soda: however, to prove it, I took three glasses, and into the first I poured common well water. The second I filled with the same water, to which I added about two grains of muriate of soda: the third I filled with water fresh from the spring. Into each glass I dropt a few drops of the solution of nitrate of silver—when a beautiful white cloud was immediately formed in the second and third, and no change took place in the first glass. I then placed the glasses in an open window, and went to dinner, and on my return, the appearances were precisely similar in the first and second: if indeed, they had not been previously marked, it would have been impossible to decide, which contained the well, or which the spring water. In the other glass no change had taken place.

Experiment 5th. On adding a few drops of muriate of barytes, no change took place. Therefore the water contains no sulphuric acid.

Experiment 6th. A solution of acetate of lead, produced a slight turbidness. This was probably caused by the sulphureted hydrogen gas.

Experiment 7th, 8th, 9th, and 10th. An infusion of turmeric caused no change. Paper stained with turmeric, dipt into the water, and exposed to the air, became slightly reddened. This probably was caused by carbonic acid. An infusion of Brazil wood induced no change. Paper stained with Brazil wood, dipt into the water, and afterwards exposed to the air, became very slightly reddened, owing also to carbonic acid. Neither litmus paper nor red cabbage, could I then procure. That a minute portion of bitumen is held in solution by the water, I infer from the fact, that the hill in which the cave exists contains mineral coal, through which I think the water passes. Many parts of the

walls of the cave are formed by slate and coal, and a slight empyreumatic taste is also perceptible in the water.

By the foregoing experiments, the water would appear to contain the following substances—and perhaps, some others, which I could not detect, from the want of the proper tests. Carbonic acid—carbonate of iron—carbonate of magnesia—sulphureted hydrogen gas—muriate of soda, and a minute portion of bitumen.

Leiper's spring, is pleasantly situated on the farm of Mr. Robert Leiper, in Washington county, Pennsylvania, a few rods over the line which divides that and Beaver counties, and a fourth of a mile from the village of Frankfort. It is a copious spring, and issues from several fissures in a large rock. The water is clear and cool, and stains glass vessels. The foregoing experiments I repeated on this water, and from the changes which took place, I presume, that it holds in solution, rather more carbonate of iron and muriate of soda—less carbonate of magnesia, about the same proportions of sulphureted hydrogen gas, carbonic acid, and bitumen, than the water of Cave spring.*

It would seem, from the preceding inquiries, that a close analogy exists between the waters of these springs, and of the celebrated springs of Ballstown and Saratoga, in the state of New York. By the well conducted experiments of Drs. Seaman, Vandervercort and Steel, the latter contain “carbonic acid, muriate of soda, carbonate of lime, carbonate of soda, carbonate of iron, carbonate of magnesia, and some of the springs also contain sulphureted hydrogen gas.”†

The water of Frankfort, when taken from the spring, is remarkably limpid and cool, but after standing a few hours exposed to the air, becomes turbid, and deposits a sediment. Its taste is hepatic and slightly empyreumatic. When first drunk, it sometimes excites nausea and vomit-

* There are several other springs in the vicinity of Frankfort, such as M'Auley's, Harper's, &c., and from the taste and smell of the water, I presume they all possess medicinal properties.

† New York Medical Repository, volume XIII. page 58. Vid. also Steel's Analysis of the waters of the Ballstown and Saratoga springs.

ing. I saw two persons vomit freely, one of whom threw up great quantities of bile. They staid only two days and were much benefited. The first glass I drank excited nausea, and with difficulty I refrained from vomiting. The water, however, mostly sits well on the stomach. I have seen some individuals drink as much as two or three quarts, in the course of an hour, without feeling a sensation of weight or coldness at the stomach. It generally operates two or three times on the bowels, and very copiously by the kidneys. I have frequently myself, drank half a gallon of it in half an hour, without experiencing the least gastric distress. It usually produced copious watery evacuations from my bowels, and acted powerfully as a diuretic. Even with those in whom it at first excites nausea and vomiting or vertigo, and slight ebriety, which last occasionally happens, after the first two or three trials, it proves agreeable. It regulates the bowels, strengthens the stomach, improves the appetite astonishingly, clears the skin, promotes a pleasant diaphoresis, and great freedom of urination.*

Drinking the water, with the use of the cold shower bath, has been of great service to persons labouring under chronic rheumatism, gravel, dyspepsia, asthma caused by gastric irritation, general debility of the system, and to convalescents from bilious fever, and liver complaints. The use of the water alone, has cured several cases of cutaneous affections, such as herpes, psora, &c.

I met one morning, a man climbing up the steps, who told me, that for the last four months he had been so crippled by rheumatism, that he was compelled to resort to crutches, and for the cure of which complaint, the ordinary

* A respectable lady of my acquaintance was so powerfully affected by vertigo, after drinking the first two glasses, that in attempting to take a walk in the garden, she fell, and was carried to bed, from which she recovered in about an hour. By taking small quantities of the water for a few days, it sat afterwards well on her stomach, and was of essential service. This lady ultimately drank half a gallon during an hour, which excited no unpleasant symptom. After drinking it, I have more than once felt quite drowsy, which was succeeded in half an hour, by an agreeable exhilaration of spirits.

remedies had proved wholly unavailing. He had been only ten days at the springs, and was so much benefited by the waters, and bath, that he was then able to walk without crutches, tolerably well. The next week he returned to his family, and resumed his trade, that of a butcher.

Mrs. W. of Pittsburgh, who was unable to walk across her room for several months, went to the springs and staid two weeks, during which time her general health was very much improved, and recovered in a great degree the use of her limbs. I met with several persons, attending the springs for the rheumatism. They all informed me, that they were more or less relieved.

From the year 1815, I had been sorely afflicted with the hæmorrhoids, for the cure of which the most approved remedies were tried without permanent advantage. During the past summer, in particular, the pain and irritation were often so great, as to cause me to pass many sleepless nights. I arrived at the springs the 30th of August last, and as usual, the hæmorrhoids prevented me from sleeping that night. The next day I commenced drinking the waters, and on the 4th of September following, I found myself completely well. Nor have I since, though nearly six months have elapsed, had any return of the complaint. I have heard from several persons, who, in a similar condition, were as promptly relieved.

Would a long continued course of these waters be of service in cases of scrofula, or stone? Dr. Powel, long a resident at the Ballstown and Saratoga springs, assured Dr. Seaman, that the waters of those springs "are a valuable remedy in gravel, and that he has rarely seen a case of it where relief was not obtained."* Dr. Steel observes, "that in calculous and nephritic complaints, these waters have long been celebrated for their efficacy; and numerous, and well attested instances of their good effects can be produced, where the disease was not only mitigated, but effectually

* New York Medical Repository, volume XII. page 61.

cured.”* I have before mentioned, that the water of the Frankfort springs had relieved several cases of gravel, and from the analogy between stone and gravel, and from the similarity of the ingredients in these waters, and those of the “Ballstown and Saratoga springs,” I infer that they might palliate if not cure the stone. Dr. Seaman also observes, “that he is informed by Dr. Powel, that in scrofula, the usefulness of the waters of the Ballstown and Saratoga springs is, perhaps, more uniform and extensive than in any other disease whatever, and so numerous are the instances he has witnessed of their happy effects therein, that he is inclined to believe, a well directed course of drinking and bathing, in those who are young, will totally eradicate its taint from the system.”† Dr. Steel also observes, that the waters have been of service in cases of scrofula, and sometimes effected cures.‡ I therefore presume, that a course of drinking and bathing, in the waters of the Frankfort springs, would have the same happy effect. The waters have, undoubtedly, been serviceable in some cases of paralysis. Nevertheless, there are diseases in which they are inadmissible.

Those who labour under consumption, and visceral obstructions, or who are surcharged with bile, will be rendered worse by their use, according to my experience. In consumption it is obvious that they cannot be of the least service, and have indeed proved injurious. In visceral obstructions, it is absolutely necessary previously to employ deobstruents, after which, a course of the waters will accelerate recovery. It is required for those who are very bilious to take an emetic, to be followed by a mercurial cathartic, as preliminary measures.

It is truly remarked by Dr. Seaman, that “an *universal*

* Steel’s Analysis of the waters of the Ballstown and Saratoga Springs, page 86.

† New York Medical Repository, volume XIII. page 64.

‡ Steel’s Analysis of the waters of the Ballstown and Saratoga Springs, page 89.

remedy is a perfect solecism," and also, that "it an unquestioned law in medicine, *that that which possesses active curative powers in one set of diseases, is equally detrimental in others.*"* Yet on the whole, it is plain, that the physician will find a course of these waters a very powerful auxiliary in many diseases, and that their discovery is an important acquisition to the inhabitants of the western country. Nor is the position of these springs without attraction. In the heart of a cheap and abundant country, affording the spectacle of the most beautiful scenery, the chemist, the geologist, the mineralogist, the botanist, the landscape painter, and the general lover of nature, will find much to employ, amuse, delight and to reward attention, or beguile the tedium, of valetudinary habits and distresses.

ART. VI. *An Essay on Uterine Hemorrhage.* By WILLIAM P. DEWEES, M. D. Concluded from No. 10, p. 303.

IN entering upon the third and fourth divisions of our subject, it will be important to their consideration, that we say a few words upon the changes effected in the uterus itself, by the delivery of the child, and the expulsion of the placenta.

We regard the uterus as a hollow muscle; and like the other hollow muscles, it has no separate or independent antagonizing power; but like them, it has a compensating one within its own organization or structure.† And also, like

* New York Medical Repository, volume XIII. page 66.

† We say that the uterus has, like the heart, and perhaps all other hollow muscles, an antagonizing power within itself, and this by its own organization. We shall attempt to prove this by stating, that in consequence of that contraction, which we call the alternate contraction of the uterus, having taken place, a considerable portion of the blood which at that moment occupied the uterus, is driven quaquaversum into the general system; a facility for which is derived from the frequent anastomoses of the arteries and veins, and by the latter not having valves—this is proved by the diminished thickness of the uterine parietes, and by the whole surface becoming paler

all the muscles of this kind, when not distended by some distracting force, will contract by virtue of some power of its own, and upon the healthy disposition of this power in the uterus, does the welfare of the woman depend in every instance of child birth or abortion. We shall not stop to inquire, as its consideration is not immediately involved in our present investigation, whether this is a legitimate muscular contraction, or the exertion of that power common to many organic, as well as inorganic substances, termed elasticity: our own opinion, however, is decidedly made up, that the efforts the uterus makes to expel its contents, and to close itself after it has performed this office, is by virtue of a genuine muscular contraction. In the performance of these duties, two distinct powers are concerned. One is shown by its constant disposition to lessen the cavity of the uterus, whenever it may be put upon the stretch, or at least whenever the cause is removed, that placed it in this condition. The other declares itself by alternate contraction, and is, perhaps, only an exalted degree of the same power, when urged by stimuli to this exertion, as in child birth, abortion, or from any other circumstance which may require its interference, to expel a foreign body from the uterine cavity.

The first of the powers just noticed, has been termed "tonic contraction," and the second, "spasmodic contraction," from its being usually, though not necessarily, attended with pain—this latter, it must be remembered, can-

at the moment of contraction; this state of things' continues, until this effort has ceased—so soon as this happens, (which may be longer or shorter, according to the power which governs the contraction, and the state perhaps of the muscular fibres of the uterus itself,) the vessels which had been just before deprived of a portion of their contents by the contraction, will at the moment of relaxation be but imperfectly filled, and perhaps even a genuine vacuum be induced; so that, so soon as the restraint imposed upon the whole of the uterine vessels by this contraction is taken off, the blood will instantly rush into them, to restore the disturbed equilibrium, and thus again distend these vessels; which distension will prove a stimulus to the uterine fibres, and thus induce a new contraction—and in this way would we account for the alternate pains of labour.

not take place without the former having preceded it, though the former can happen without the latter.*

Such, then, is the economy of the uterus in its healthy condition, that it immediately exerts the tonic force with which it is endowed, to close upon its contents, and accommodate itself to the precise size of such contents—thus, so soon as the liquor amnii is discharged, the uterus instantly diminishes its size, by virtue of this tonic power, in the exact proportion to the quantity of water displaced; and so plastic is this power, that it makes the parietes of the uterus take the inequalities presented by the surface of the child; and when this is expelled, it reduces itself so much, as to compress the remaining placenta, and force it from its attachment with itself, and eventually to expel it from its cavity; when this is achieved, it goes on reducing itself, until it interrupts in a great measure the supply of blood from the spermatics and hypogastrics; closes almost completely the mouths of the vessels exposed by a separation of the placenta, and thus prevents any inordinate flow or hemorrhage.

From this it would appear, (and it is what all experience confirms,) that the safety of the woman depends almost entirely upon the healthy exercise of that power, we have just termed the “tonic contraction;” and on the contrary, that the risk she may run in giving birth to her child, is in exact proportion to the diminished force of this power; of course the preventing and stopping of floodings, will depend upon recalling it when absent, or upon augmenting it when deficient.

The tonic power of the uterus may be feeble, or altogether wanting—it may be lost in every portion of the uterus, or only in a part; thus the fundus may possess it, and the body and neck be without it; this may give rise to the inversion of the uterus—the fundus and neck may be deprived of it, while the body may enjoy it—this may occasion the hour glass contraction; the body and fundus may

* See essay on the means of lessening pain in certain cases of labour, &c.

be exhausted of it, while the neck retains it; this may produce the concealed hemorrhage. The body and fundus may be firmly contracted, while the neck of the uterus may be flaccid; this may occasion flooding, if the placenta has been attacked in that vicinity.

The remote causes of uterine inertion, are said by Le Roux and others to be—1st. A general morbid condition of the body, as tendency to scurvy, &c. 2d. Long illness. 3d. A depraved condition of the circulating mass. 4th. Unusual laxity of fibres, as in leucophlegmatic habits, &c. 5th. Over distension from an excess of liquor amnii. 6th. Strong emotions or passions of the mind. 7th. A long protracted labour. 8th. A previous hemorrhage. 9th. Lesions in the proper substance of the uterus itself, &c.

But the condition of the tonic power, is far from being always regulated by the contingent situation of the system generally; we cannot infer its absence from the debilitated state of the body at large; nor can we calculate upon its presence with certainty, because every other function is carried on vigorously—this is a fact well known to every practical accoucheur, and should teach us this highly important caution, to act as if this power were, or easily might be expended, and to consider no woman safe from the casualty of its exhaustion, until we are assured to the contrary, by a careful examination made with the express view to ascertain it.

Fortunately for the patient, as well as for the practitioner, this power when weakened, nay even to excess, may almost always be recalled by proper means, and is almost certainly obedient to the judicious use of appropriate stimuli; but upon the time and manner of this application much will depend, as we shall show presently.

We are now to consider such hemorrhagies as may occur, before the placenta is expelled. And it must be constantly recollected, as we have said above, that this cannot happen, but when the placenta is in part or wholly separated from the uterus; and that this separation is only effected in the cases we are now speaking of, by uterine contraction, unless

some mechanical violence has been previously offered, which was capable of producing this effect. For so long as the placenta preserves its entire continuity with the uterus, no flooding can ensue, should this viscus be even in a state of complete atony or exhaustion.*

As there is considerable variety in these cases, it will be well for the sake of perspicuity, to consider them under the following heads:

1st. Where there is a partial separation of the placenta, but the uterus enjoying some tonic power.

2d. Where there is a partial separation, but the uterus possessing very little or no tonic power.

* Unless some mechanical violence has been done to the uterus, either from external impressions, or from some incautious manœuvre performed within its cavity, as in the act of turning, or the injudicious use of instruments, the placenta will preserve its connexion with the uterus, and there will be consequently an exemption from flooding; but this connexion may be destroyed in a moment, by the causes just stated. Since writing the above note, an interesting case has occurred, which completely proves our position. Mrs. —, on the 23d of March, 1823, was taken at her full period with slight pains, and the other marks of approaching labour—soon after these had manifested themselves, she was seized with violent vomiting, and considerable hemorrhage; there was almost a constant effort in the uterus to throw off its contents, together with occasional increase of pain; we were now sent for, and found the patient as above stated; the vomiting returned from time to time, and whenever it did so, there was an increase of the hemorrhage; and this also occurred when the alternate pains were on, which gave rise to a suspicion, it was a placental presentation. We ordered the patient to her bed, and upon examination, the membranes were found protruding, and the child rapidly advancing—we ruptured the membranes immediately, and the hemorrhage was instantly suspended; in a few minutes more the child was expelled, but still born; the naval string was cut, but not a drop of blood issued from either portion of it; every effort was unavailingly made to resuscitate the child; the placenta was found loose in the vagina, and upon examining its surface, it was found covered over its whole extent with a thin black coagulum, an evidence it had been entirely separated, and the child thus made to perish. The uterus appeared to contract well, and every thing was promising for an hour; at the expiration of this time, the uterus relaxed, and a profuse discharge instantly took place; when we arrived, for we had taken our leave, the patient was very faint and extremely sick at stomach, and very restless, which necessarily augmented the discharge; we immediately commenced a pretty

3d. Where there is a partial separation of the placenta, while the remaining portion is too adherent, and the uterus contracts but feebly.

4th. Where every thing is as at 3d., but where the uterus enjoys its full power.

5th. Where there is an entire or partial separation, but the uterus in a state of exhaustion or syncope.

6th. Where there is either a partial or complete separation of the placenta, and where the body and fundus are in a state of inertia, while the neck enjoys its tonic power.

I. Where there is a partial separation of the placenta, but the uterus enjoying some tonic power.

In this case, the last efforts of the uterus to expel the child may occasion a partial separation of the placenta, and of course there will be a greater or less discharge of blood.

1st. As the exposed surface may be large or small. 2d. As the contractile power of this organ may be more or less perfect. 3d. As the circulation of the blood may be more or less hurried. In almost every instance, after the birth of the child, we find a quantity of blood issue from the vagina; but the young practitioner must not look upon this as an hemorrhage, unless it continue some time, and has an evident effect upon the pulse.* In this case he is immediately to attempt to arrest it, by soliciting an increased contraction of the uterus, by pretty briskly passing his hand over the region of the uterus, and from time to time at-

brisk friction upon the abdomen, the uterus soon contracted and did not again relax. Two grains of opium were ordered every two hours, until the patient should become tranquil: on the following morning she was found much recruited, and so far since (four days) has had no unpleasant symptom.

* Some women will bear a much larger loss of blood with impunity than others; and therefore we are to decide upon the propriety of interference, from the effect which this loss has upon the system, rather than from the quantity which has been expended; if we do not attend to this rule, we shall be unnecessarily interfering, where the powers of the system are every way competent to the exigences, and in other cases we may delay assistance so long, as to render it unavailing.

tempting, as it were, to grasp the uterus by closing his fingers upon it.

By proceeding in this manner, he will almost instantly find the uterus harden under his hand; a coagulum of a greater or less size will escape from the vagina; a slight pain may come on, and the placenta may be thrown down into the vagina. When this contraction takes place, as it almost always does, where the woman has not been too much exhausted previously, either by a long protracted labour or disease, the discharge of blood is quickly put a stop to; the uterus diminishes much in size, and retires almost within the pelvic cavity, while the placenta is entirely detached from the uterus, or may be even expelled from the vagina. This is, perhaps, the most simple case of flooding that can occur, and we believe it never requires any other management, than the mere friction upon the abdomen; its termination may not always be so sudden as we have now stated, but it is sure to take place in a very short time, and just as fortunately as we have described it to do.

II. *Where there is a partial separation, but the uterus possessing very little or no tonic power.*

In this case, the same cause may produce the same effect as in I.; but the uterus may be in a very different condition; here there will not only be a discharge of blood in proportion to the surface exposed by separation, and the state of the circulation, but also a continuance of it, commensurate with the atonic condition of the uterus. This state may continue for a longer or a shorter time, as may be governed by the force of the remote cause which induced the atonic state of the uterus, or as it may be of easy, or of difficult removal.

In this, like every other case of flooding at this period, we should endeavour as quickly as possible, 1st. To remove the remote cause which induced the atonic state of the uterus, wherever it is either evident or practicable; 2d. To excite, as soon as may be, uterine contraction. It will be readily perceived, that we cannot have a control over some

of the remote causes of inertia just enumerated, and therefore that our chief attention should be directed to the fulfilment of the second; and this should be immediately attempted by, 1st. Frictions upon the abdomen as above directed; in this we have the greatest confidence, and never fail to employ them, whether there be hemorrhage or not, with a view to promote contraction, if the uterine globe be not felt firm upon the application of the hand to the abdomen immediately after the child is removed from the mother; and when there is a flooding, it is what we chiefly rely upon to restore the energy of the uterus; and in this we have hitherto never been disappointed—its influence is as prompt as it is efficacious; indeed we consider this as indispensable, let whatever other means be employed. We have never yet had the misfortune to meet with an uterus, that was insensible to this mechanical stimulus, or to have lost a patient from the immediate loss of blood; and we can with great truth affirm, that this simple plan has constantly appeared to us, to be the chief agent in arresting the most formidable floodings of the kind we are now considering. The external face of the uterus as felt through the abdominal parietes, appears to us to be equally sensible to stimuli of the mechanical kind, as the internal surface of it, and certainly offers facilities and advantages, the cavity does not—1st. It is always at hand to be acted upon; 2d. No risk is run by very freely stimulating it with the extremities of the fingers; 3d. It excites but very little or no pain if judiciously managed; 4th. No fear is to be apprehended of increasing the discharge, which is not always the case, when the hand is employed within the uterine cavity; 5th. No danger of inducing inflammation or other injury, as may readily happen by the introduction of the hand.

This mode of arresting hemorrhage by reviving the powers of the uterus, is not new—it was long since recommended by a Mons. Dassé,* an accoucheur of Paris, whose method, though we do not exactly follow it, we will give in

* *Journal des Savans*, d'Aout 1722, p. 494.

his own words. “ Il ne faut que porter les deux mains sur la region hypogastrique, et comprimer mollement le corps de la matrice par un mouvement tantôt circulaire, tantôt de droite à gauche, de gauche à droite, de haut en bas et de bas en haut. Tous ces différens mouvemens, sont absolument nécessaires, à cause des différens plans de fibres que s’entrecroisent et forment une espèce de réseau.” We have just observed, that we do not follow exactly his method, though the effect is precisely the same—one hand is all that is necessary, or that can be conveniently employed ; and if this be industriously, and properly used, we are persuaded that it will rarely fail. We must, however, in justice to ourselves declare, we were in the habit of employing this method long before we were aware it had been previously recommended by M. Dassé.

But in adopting this method, we are to take care we do not abandon it too soon ; for it is not sufficient that we procure the contraction of the uterus, but that we maintain it in this condition for some time, by the continuance of the friction. And we would here caution the inexperienced practitioner against alarm, when almost at the instant he feels the uterus hardening and diminishing under his hand, he hears very plainly a considerable discharge of coagula and fluid blood from the vagina ; and at the same moment he finds the uterus retiring as it were from under its pressure. This discharge is but the effect of the contraction induced by his manœuvres upon the external surface of the uterus, and must be regarded as a favourable omen, as it assures us that the uterus is about to regain its powers. Perseverance is now all important ; the frictions are to be continued until he has sufficient evidence of the permanency of the contraction, by noting that the uterus no longer relaxes itself, as it did most probably at the commencement of his operations.

Should this plan, however, not succeed in detaching the placenta, and stopping the flooding, we are, 2dly, to deliver the placenta by the introduction of the hand within the cavity of the uterus, which must now be considered as the

cause of the continuance of the hemorrhage, by preventing the uterus from contracting sufficiently to shut up the mouths of the bleeding vessels. It will be found either partially or entirely detached; if in the first condition, we insinuate carefully the fingers behind the loose portion of the placenta, and gently separate the adhering part; we then grasp the mass in the hand, and rotate it several times against the internal face of the uterus, with a view of more certainly procuring subsequent contraction; nor must the hand be withdrawn until this is perceived—should the uterus, however, be found to contract firmly upon the hand immediately after it has effected the separation of the placenta, it may be gradually, but never suddenly withdrawn.* If the placenta be found detached from the uterus, it must be withdrawn, but practising the precautions just inculcated. We must not, however, consider the patient free from all risk because the placenta is extracted, we should examine the condition of the uterus by again placing the hand upon the abdomen; if it be well contracted, it will be found hard, and about to sink within the pelvic cavity, which will give us strong grounds to believe, that the woman is about to do well; but if, on the contrary, the uterus is found large and not very firm, we have every reason to fear there will be a renewal of the flooding, and the frictions must be again had recourse to.

It must be confessed, however, the young practitioner may not be able without some farther directions, to detect the flaccid condition of the uterus, though he may be very able to perceive a contracted one—we shall therefore state, that when the uterus is not contracted, the whole abdomen appears equally soft and pliant—if the fingers be pressed backwards from the pubes, no hard unyielding tumour is perceived; and if he inquire into the state of the discharges from the vagina, he will find them, if not profuse, more abun-

* If the uterus gains its wonted powers, the hand with the placental mass will be expelled almost immediately from its cavity; but when this effect is even perceived, the hand should not be permitted to leave it too suddenly.

dant than they should be—when all these circumstances combine, he may be certain the uterus is in a state of inertia ; and he will soon be convinced of this after he has commenced his friction upon the abdomen, (and he should not now lose a moment before he commences it,) by finding it harden sometimes suddenly, at others gradually under his hand, and presently sink when well conditioned, into the pelvis, or at least the fundus will be found below the umbilicus.

In all cases of severe flooding of this kind, we are in the habit of directing the nurse or any other intelligent woman, to perform this duty from time to time, for an hour or two after our departure ; and more especially, should there be a return of discharge, that no evil may arise until we can ourselves again attend to the patient.

3dly, We think it best to call in every aid in such cases that may be at command ; and we frequently exhibit a few grains of the sugar of lead, with a pretty full dose of opium ; repeating the former with a diminished dose of the latter, every fifteen minutes or half hour, until we are pretty well assured it will be no longer necessary in such crowded doses—we, however, do not give up the use of the acetate of lead, unless the stomach be very sick, for at least twelve hours, though we diminish the quantity. In alarming cases we first exhibit from five to ten grains at a dose, unless contra indicated by the state of the stomach ; but when the necessity is less, we reduce it to two grains every one, two or three hours, as the case may require. Should much pain attend, we give laudanum or opium until it is either relieved or much subdued.

It is not unusual, where the woman has sustained considerable loss of blood, for the stomach to become much deranged—vomiting or great nausea, is almost always an attendant upon it ; and when either takes place, it becomes very fatiguing and distressing to the patient. If she vomit, the exertion is so severe as sometimes to exhaust almost to syncope ; and during this act, there is almost always a greater or less discharge of blood, which at this moment

can be but ill spared—if it be sickness of stomach, it renders the patient so wretched, that she cannot rest quiet for a moment together in one position; she therefore tosses about from place to place until she is almost spent—we dread this latter condition more than an occasional effort to vomit, as it seems to interrupt the tonic contraction of the uterus, by the influence which nausea is wont to exert upon all muscular power; as well as to induce immediate exhaustion, by producing unceasing jactation. Nothing tranquillizes the stomach under these circumstances, so far as we have observed, like opium in the solid form—a newly prepared pill, of two grains of the opium with a very small portion of soap, to facilitate its solution in the stomach, should be given every hour or two, until the vomiting ceases or the stomach becomes reconciled.

Should there be a too abundant discharge after the expulsion of the placenta, though not amounting to a flooding, it should be moderated by the use of the lead; and the most effectual mode of exhibiting it, is a watery solution of it with laudanum in form of enemata, unless the woman be too weak to have it administered in this manner—we have already directed the quantity, &c. when thus used.

III. Where there is a partial separation of the placenta, while the remaining portion is too adherent, and the uterus contracts but feebly.

A flooding may be excessive under the circumstances mentioned in this variety, and considerable time may be lost in vainly soliciting the extrusion of the placenta by frictions upon the abdomen, and efforts exercised upon the cord,* before it is suspected that this mass may be too ad-

* Great care should be taken in every attempt to deliver the placenta by a force applied to the cord, that it does not exceed the degree it will bear; great inconvenience is sometimes experienced, from its separating at its union with this mass, when it becomes necessary to deliver it by the hand, as it is not easily distinguished from the uterus itself, especially if the hand be compressed by the contractions of this organ—should this accident, however, happen, the placenta may be known from the uterus,

herent—it is fortunately but of rare occurrence, but its management on that account should be the better defined.

We can never know with certainty, that the complication here spoken of exists, until the hand be passed into the uterus, and a proper examination made of the condition of the placenta; for this case, as far as regards common symptoms, resembles almost every variety of retained placenta, and nothing but a strict search can justify its being pronounced a case of adherent placenta; this excuse is, we are aware, but too frequently employed to justify the introduction of the hand into the uterus to bring away the after-birth by force, when it required but a little more time, or a little more address, to have it delivered by the natural agents. We frequently hear young practitioners boast of the difficulties they have encountered in delivering the placenta, but we rarely meet with an experienced one who declares the same thing.

In this country, (at least so far as our own experience will warrant the remark,) we may say, that the adherent placenta is of very rare occurrence; while in Great Britain, or rather perhaps in London, it is comparatively frequent, agreeably to the testimony of Dr. Ramsbotham.* This condition of the placenta may be suspected, when the uterus continues large, though pretty firmly contracted; when there is a constant issue of blood, and that florid; when the placenta is not within reach of the finger, and when after a gentle force has been applied to the cord, it is found to retract, as if an elastic string had been stretched; when, then, the quantity of blood expended from the vagina would render manual interference necessary, and more especially when frictions, the exhibition of the sugar of lead, and other “appliances,” have failed to stop the discharge, or to

1st, By the vascular plexus that spreads itself over its internal surface;
2d, By the woman not complaining of pain when this part is touched; and
3d, By the thickness of the uterine wall at this place, as may be determined by the hand which is externally applied, and the one within the uterus.

* *Practical Observations on Midwifery*, page 80, American edition.

expel the placenta, the hand should be introduced, and the separated portion of the placenta sought for—from this part the hand should take the direction of the adhering portion, and if it appear that it would require considerable force to destroy its connexion with the uterus, every attempt to detach it should be instantly desisted from, and only the piece or pieces found loose, or not adhering, be removed; the remaining part must be trusted to the efforts of nature.

There will necessarily be both a difference in degree, as well as of extent of adhesion in individual cases—while some may be only rather more strict than is usual, others will seem to have the substance of the placenta identified with that of the uterus—and while a small portion only may be too adherent in one case, a large one may be so situated in another; but in every instance where there is a separated portion, there will be a discharge of blood, either fluid or coagulated, and that, in proportion to its accumulation, or the activity of the uterine fibres. These cases are almost always accompanied by pain, though not of the most severe kind; they, however, make but little impression upon the placenta, nor do they much diminish the size of the uterus, yet with each return, there is more or less blood discharged, and the woman rendered faint by the frequency, rather than the quantity evacuated at each contraction, except where there is a large portion separated; then, as in every other instance, she will be more quickly exhausted. In cases like these, it seems to be agreed, that nothing but putting the uterus in a condition to contract itself into a smaller compass, by the removal of such portions of the placenta as can be readily detached, will put a stop to the flooding, or even moderate it; and it seems also well understood, that even this does not place the woman beyond danger—the efforts of nature are not always availing, and the woman dies from the mischief created by a retained portion of the placenta.

Should the discharge continue after a piece of the placenta is removed, the acetate of lead, and frictions, should

be continued ; and astringent and detergent liquors should be thrown from time to time into the uterus itself, by means of a proper syringe.* Let this case be treated with what address it may, it is one always replete with danger to the woman ; she may sink from the pertinacity of the discharge, or succumb under fever, or other evils excited by a putrefying placenta. It is not part of our plan to speak of the subsequent treatment of such cases ; we can with much confidence refer for more information upon this head, to the very able treatise of Dr. Ramsbotham, just mentioned ; and we may here take occasion to say, that not only for this subject, but several others of high interest, we would recommend every practitioner of midwifery to the perusal of his work.

IV. *Where every thing is as at III., but where the uterus enjoys its full power.*

This variety is not only less frequent, but is much less dangerous, than the one just spoken of ; for the uterus when enjoying its full powers, will contract, with sufficient force to prevent any serious mischief from hemorrhage, though there may be considerable waste before the uterus is emptied of the placenta—this requires the same manual treatment in the beginning, and the same medical routine for the subsequent symptoms.†

* A considerable variety of substances have been proposed for this purpose, as alum and water, wine and water, wine alone, vinegar, &c.—but what has answered best in our hands, in the very few instances of this kind which have fallen under our notice, has been a strong infusion of camomile flowers, in which a lump of quick lime has been slacked, and then permitted to settle perfectly clear—this may be used very moderately warm, three or four times a day, or oftener if required—the common pewter syringe for enemata, with a flexible tube attached to it, answers perfectly well—the gum elastic tubes for the throat or bladder, may be very readily fixed to the extremity of this instrument. We saw in one instance, port wine and water, with a little alum, used with advantage.

† There is a variety in this division, which cannot be treated of, as strictly belonging to the subject of consideration, yet its importance in itself will, we hope, be a sufficient apology for our introducing it here—it is

V. *Where there is an entire or partial separation, but the uterus in a state of exhaustion or syncope.*

This variety is most truly alarming, and requires the most prompt and judicious interference, that the woman may not almost instantly die. This case occurs, 1st. Where a long protracted labour has exhausted the patient, previously to delivery, and where this has been unexpectedly sudden. The uterus from previous fatigue and exertion becomes enfeebled, though capable for the moment of a powerful effort, which suddenly terminates the labour, but by this its remaining power is expended—the placenta, from the long continued, and frequently repeated pains, was ready to separate, and waited but for the contraction which expelled the child, to destroy its connexion with the uterus, and to fall loose or nearly so into its cavity, and thus give opportunity to the exposed vessels to pour out a torrent of blood. 2d. It takes place, and that more frequently than from the causes just mentioned, when the labour has been very rapid, and where the child seemed to be floated from the uterus, by the sudden gush of the waters—under such circumstances, the uterus is sometimes instantly deprived of its tonic power, and thrown into a state of absolute *syncope*, as it has been happily termed by Le Roux. Or, 3dly, It may arise (and it but too often does,) from the too hasty

where the placenta is completely adherent; and the uterus powerfully contracts upon this mass, and prevents the introduction of the hand, or even of a couple of fingers, for the removal of it, were this even practicable—it is, fortunately, of rare occurrence; we have seen but two cases of it, in neither of which was there the slightest flooding; indeed, scarcely a drop of blood was discharged in the one instance, and in the other, only a few small coagula were expelled, the whole amounting not to four ounces. This case must be trusted to nature; for after repeated examinations, the uterus was not found to relax sufficiently, even to attempt the removal of the placenta. This mass was expelled on the third day entire, in the one case, without any unpleasant consequences; but in the other, it employed many days before it was thrown from the uterus, and then in small detached masses, accompanied with great fœtor, thirst, and fever—the patient eventually did well, though she remained weak a considerable time.

delivery of the body of the child, after the head has escaped through the os externum—we would wish here to caution the young practitioner, against one of the most formidable errors, that can be committed against sound practice, or just principles; for at this moment, the uterus has expended much of its power, in pushing the child thus far; and if some little time be not allowed it to recover from this state of expended strength, before the body is hurried through the pelvis, it will be sure to increase, and perpetuate the inertia, into which the uterus has just fallen from severe exertion—hence, we have always to apprehend a flooding, where the shoulders are expelled by the same effort that delivers the head, more especially if the child be large, and the waters but very recently expended, or where the child is small, and the quantity of water great, and that but a short time discharged. Should this condition be accompanied with a partial separation of the placenta, an alarming hemorrhage will necessarily ensue; and if with an entire one, death may be the almost immediate consequence.

When hemorrhage proceeds from either of the causes just stated, it will be evident, that nothing but the most prompt interference, and the employment of the most active agents, can prevail against the formidable issue of blood, that pours from the vagina—no time must be lost by temporizing; the woman will sink if not instantly succoured—frictions upon the abdomen should be quickly commenced, and be actively pursued; large doses of the acetate of lead and opium should immediately be exhibited—cold water poured from a height should be let fall upon the abdomen, if the frictions do not very soon recall the contractile power of the uterus; and if much faintness from the loss of blood attend, a small quantity of moderately strong brandy and water should be given every few minutes until this disposition is relieved; this will pretty soon follow its exhibition, if the means for re-exciting the uterus should be successful—fresh air should be freely admitted, but the feet and legs should be kept warm, by bottles of warm water or heated flannels;

the ergot, if at hand, or readily procured, might be tried, provided nausea or vomiting do not attend.*

But we must here repeat, our great dependence is upon the abdominal frictions; having, so far, never known them to fail. Some practitioners have introduced ice† into the cavity of the uterus, under these circumstances, and it is said with success. For our parts, we can say nothing upon the influence of this remedy, from our own experience; and were we tempted to employ this substance, we should not judge it necessary to conduct it within the cavity of the uterus, from a belief (not, however, we freely confess, confirmed by trial,) that it would be every way as effectual if it were held in the vagina.

We shall illustrate this condition, by a case taken at random from a number of similar ones—for all these cases are so much alike, as to require but one general mode of treatment.

Mrs. — was delivered by a midwife, after a very easy, but rapid labour—the placenta was very quickly delivered, as it was found, as the midwife said, loose in the vagina; a very profuse flooding immediately ensued, for which she attempted nothing, assuring the friends of the lady it was a common occurrence, and from which nothing was to be apprehended—but the patient becoming pale and faint, her friends were alarmed, and we were sent for in very great haste; when we arrived, it was said the patient had been delivered about twenty minutes, and the placenta had been extracted about fifteen of that time. When we came to the bed side, we were truly persuaded the patient was dead—no pulse could be felt, and for some time there was a sus-

* We do not mention the ergot as a remedy in uterine hemorrhage from our own experience, but have no hesitation in believing from theory, and from the practice of others who are every way worthy of credence, that it may essentially and promptly be useful. The proper dose will be twenty grains, and repeated in fifteen minutes should the first not succeed.

† Levret, we believe, was the first who had recourse to this remedy in the manner above stated, and it has since been recommended by others; it has lately been advised by Mr. Barlow.

pension of respiration; syncope having just taken place; we instantly commenced a brisk friction upon the abdomen—ordered brandy and water by the tea spoonful to be given with frequency, warm applications to be made to the feet and legs—the curtains to be opened, and fresh air admitted from door and windows, and immediately sent for pills of the acetate of lead and opium. In the course, perhaps, of two minutes after the abdominal frictions were commenced, we had the satisfaction to feel the uterus beginning to harden under the hand, and every instant to acquire more and more firmness, and in about ten minutes it was found much diminished in size, and much more solid—in the act of puckering itself up, there was a large quantity of coagula and fluid blood expelled from the vagina, which so alarmed the ignorant midwife, to whom was consigned the task of watching the discharge, that she declared the woman must die, if we did not desist from “rubbing the womb so violently;” but what to this poor creature was so alarming, was to us great comfort, and only induced us the more steadily to persevere in our plan of irritating the uterus.

The disposition to syncope was now much less, and the pulse could, by a nice examination, be felt returning to the wrist—this gradually increased in volume and force, as the faintness diminished, and in about half an hour the patient was considered out of immediate risk, provided there should be no further return of the flooding; to guard against this as effectually as we could, we directed two grains of the acetate of lead, and an half grain of opium, to be given every half hour; the frictions upon the abdomen to be renewed, should the uterus be found to relax ever so little, and for this end a very intelligent lady who was present, was instructed to perceive any change of this kind, that might take place—the brandy and water to be given only *pro re nata*, and the most perfect rest was enjoined, though the position of the patient's body was a very constrained one. We again saw our patient in about two hours, (having given orders to be instantly sent for, in case of any unfavourable change, before we returned,) and found her situation in

every respect improved; she had had no return of hemorrhage, but was occasionally troubled with after pains—her faintness had gone off entirely, and her system was re-acting with considerable force—her position was now altered very much to her satisfaction; the brandy and water was forbidden, and she was permitted, instead of it, to take a few spoonful at a time of tapioca, seasoned with lemon juice and sugar—the pills of the acetate of lead were directed once in two hours. From this time her recovery was as rapid, as such a prodigious waste of blood would permit; milk was formed in sufficient quantity, after rather a longer period than usual; and the only subsequent inconvenience she experienced was the head ache, which so almost invariably follows excessive uterine hemorrhagy; this was relieved by keeping the bowels freely open.

VI. *Where there is either a partial or complete separation of the placenta, and where the body and fundus are in a state of inertia, while the neck enjoys its tonic powers.*

This is the most insidious situation in which the uterus can well be placed; and it is one in which young practitioners have more frequently lost patients from hemorrhage, than any other, after the birth of the child. The neck of the uterus enjoying its powers, at a time that both fundus and body are in a state of inertia, will give rise to such an accumulation of blood within the uterine cavity as will destroy the patient, should this condition be accompanied by either a partial or total separation of the placenta, without its being suspected that such discharge is going on—in this case, the hemorrhage will be concealed; for a coagulum being arrested at the os uteri, in consequence of its contraction, will prevent either fluid blood or coagula from issuing, and as there is no apparent flooding, the inexperienced accoucheur rests satisfied that all is going on well; nor is he roused from this state of security sometimes, until the patient is in articulo mortis, or when, perhaps, all human aid is nugatory.

This case should warn the practitioner of limited experience, against a false estimate of his patient's security, and

should teach him never to omit to ascertain the state of the uterus, by a careful examination of it through the abdominal parietes, as we have already advised. If, upon placing his hand upon the abdomen, he find the uterus voluminous but far from being hard; if upon inquiry he learn, that there is little or no discharge from the vagina; if he observe his patient become pale and faint, with an hurried breathing; if, upon touching the wrist, he find the pulse weak, frequent, or extinct, and the skin cold and clammy, he may be pretty certain there is a concealed hemorrhage;* he has now not a moment to spare, that he may rescue the woman from an impending fate—he must be firm, prompt, and self collected, and instantly put in practice every requisition that may promise relief to his almost expiring patient.

He should commence by abdominal frictions; and if he find the uterus becoming harder in consequence of them, he should persevere, until he thinks it has acquired a disposition to contract—should the hardening of the uterus not be attended with a discharge of coagula, &c. from the vagina, he must conclude, either that the neck of the uterus is too resisting to be overcome by the contraction of the body and fundus, without further aid; or that these are too feeble to overcome the resistance of the os uteri, though the latter may be comparatively weak—in either case, he must attempt to give to the uterus an increase of power by removing its contents.

This must be conducted with much cautious coolness, that the remedy may not increase the evil—the frictions upon the abdomen must be entrusted to some proper assistant, and they should be kept up with persevering constancy, while the practitioner carefully inserts his hand into the vagina—should he find clots here, he should remove them, if they are not immediately forced off by the effort which will most probably be excited by the introduction of

* We say, “pretty certain, there is a concealed hemorrhage,” for we cannot say he may be altogether certain, since a rupture of the uterus may be attended with all these symptoms.

the hand. This being done, he is to insinuate finger after finger into the os uteri, and gradually attempt its dilatation; should it be very resisting, it must be cautiously overcome; and we believe, if this be properly conducted, it will never offer such opposition, as to render any considerable force necessary—perseverence in a well directed manner, we are persuaded, will overcome any resistance this part may offer, under the circumstances we are considering. When the hand has gained possession of the cavity of the uterus, the wrist should be so pressed against the side of the neck of the uterus, as to make room for the escape of any coagula or fluid blood that may be now disposed to issue—by managing in this way he may empty the uterus so gradually as almost to insure its subsequent contraction; and in this he will be much aided by the external friction. He is now to search for the placenta;* if it be but partially detached, he must cautiously separate the remaining adhesions—when this is done with care and under the precautions above suggested, he is to remove it by rotating his hand, now grasping the placenta, against the internal surface of the uterus, until it manifest a disposition to contract; and then, and not till then, should the hand be withdrawn. Should the placenta be found entirely detached, it must be delivered with the same cautious regard to uterine contraction. After the delivery of the placenta, pressure and friction should be continued upon the abdomen, nor must these be abandoned

* It may be well to observe, that in every attempt to separate the placenta, we should, before we commence the operation, fix the uterus as firmly as it can well be done, by the external application of the unemployed hand upon the fundus—in fact, it should never be attempted without this precaution, as the operation is not only very difficult without it, but is also very uncertain—the woman, if possible, should be placed upon her back on this occasion, as we have directed for other purposes. It may be also proper to suggest another caution connected with this operation, which is, that we be certain that we have removed the whole of the placenta, except in those cases where it is expedient to leave a portion to the natural efforts of the uterus, as in the too adherent placenta. It is, however, sometimes almost impossible to determine this, where the placenta is lobulated, as now and then happens. See Leroux, Baudelocque, &c.

until the contracted uterus give assurance of recovered energy.

In addition to what has now been directed, the other remedies which have been suggested should be had recourse to—the sugar of lead, ergot, and cold applications under the restrictions already proposed, should be tried—this case, and the one next to be considered, offers, perhaps, the best chances for the ergot, should it possess its reputed powers, to be successful in—the brandy and water should not be omitted, if the woman be very faint and much exhausted. The after treatment will suggest itself; and after symptoms must be treated *pro-renata*.

When the placenta has been expelled, and is followed by flooding, the mode of proceeding is so similar to where this happens before that has taken place, that it will require but a few words to make its management perfectly clear. In this kind of hemorrhage, like the one we have just been considering, it is required that the uterus should contract before it can be possibly arrested; therefore, it will be necessary to employ all the means already pointed out for this purpose; and here, like in the other cases, we rest our great dependence upon abdominal frictions, the acetate of lead, ergot, cold applications, &c. Should the concealed hemorrhage take place, it must be treated very similar to those before the placenta is expelled,* that is, the hand must be introduced into the uterus, and the coagula suffered gradually to escape, while the uterus is gently stimulated by the hand passing cautiously over its surface; and when it is found to contract upon it, it may be slowly withdrawn; the

* This case is sometimes very suddenly fatal—we were once called by a midwife to visit one of her patients; but upon our arrival we found the woman dead—the midwife was much surprised, as she could not account for her death, since “the labour was natural and easy, and the placenta had come quickly away,”—we told her our suspicions of the case, which was afterwards confirmed, by opening the body—the whole cavity of the uterus was filled with blood, and was distended to nearly the size of one at the full period of gestation—the mouth of the uterus was found sufficiently closed to retain the blood discharged from the surface to which the placenta had been attached.

after treatment must necessarily be the same. This case, generally speaking, is of much less difficult treatment, than where we have the placenta to contend with; and will always, so far as we have yet experienced, yield to the treatment proposed, provided a proper chance be given to their employment—it cannot be supposed they will be availing when the patient is in articulo mortis.

It sometimes, however, happens, that a portion of the placenta may be left, either entirely or partially attached to the uterus, which will give rise sooner or later to hemorrhage—this may sometimes be immediately detected by the inspection of the placenta itself—at other times this is impossible, especially in those cases where we are under the necessity of bringing away this mass piece-meal—if this accident be discovered at once, it is best, we believe, always to remove it, unless it should be a portion that is too adherent to the uterus. Should this not, however, be discovered before the uterus has firmly contracted upon it, it will be much better to suffer it to remain, and trust to nature for its expulsion, than to run the risk of provoking a flooding, exciting a great deal of pain, or of producing inflammation. But should flooding attend, we must deliver the retained portion; and this can almost always be done, as the mouth of the uterus is generally found open or yielding, when hemorrhage attends; but should it be found otherwise, it must be trusted to nature, and the excess of discharge moderated by the tampon—if this be employed, it will be well to renew it every twelve hours, taking care to wash out the vagina with the infusion of camomile tea, wine and water, &c. before it is replaced.

The retained portion of placenta may not, however, be suspected, sometimes, for several days after delivery; but we have right to conclude this to be the case, when there is frequent return of pains, pushing from the vagina coagulum after coagulum, and these followed by fluid blood upon each relaxation of the uterus. When the discharge of fluid blood happens in quick succession, and in weakening quantities, we should immediately attend to the condition of the uterus;

if it be found sufficiently yielding to admit the hand, it should be carefully introduced, and the portion detached and withdrawn.* We may sometimes succeed in detaching it by insinuating a couple of fingers into the uterus, and moving them in a circular manner between it and the placenta, so as to loosen it, and it then may be removed either by hooking it with the finger, by the natural efforts of the uterus, or by the small crotchet we recommended for the removal of the secundines in cases of early abortion. If neither the finger nor the crotchet succeed, we must trust to nature; taking care to keep the discharge in subjection by the tampon.

The young practitioner is cautioned against treating this case with indifference; it is one not unfrequently attended with danger, and sometimes death has ensued very quickly, as Lamotte and others assure us. Should he be doubtful of his own judgment in this case, let him, by all means, (as well as in every other case of danger,) request the advice of an older practitioner.

On the means of preventing Flooding.

Having at some length considered hemorrhages which may accompany pregnancy, and follow delivery, let us say a few words upon the mode of preventing those which may succeed to labour, as we are of opinion that much may be done to this purpose. From what we have said it will be evident, that whatever interrupts the contraction of the uterus, or produces its relaxation after it has contracted, will occasion a flooding, provided there be a separation of a part or of the whole of the placenta; it is equally evident, that whatever will ensure this contraction, or contribute to it, will either prevent or interrupt hemorrhage from this part. Much, then, will depend upon the manner in which the last stage of labour is conducted, to ensure the future contrac-

* Baudelocque tells us he has known this kind of hemorrhage show itself on the tenth day, and has been obliged to pass his hand into the uterus to extract it.---System of Midwifery, vol. ii. p. 27.

tion of the uterus. This subject has been treated of by Dr. Denman, with much apparent interest; and he has given advice, that is neither conformable to theory, nor warranted by experience, if our own observations upon this point be correct. We shall quote his own words upon this occasion, that no error may arise from substituting other than his own language. The Doctor says, "When I have been attending women, who were prone to violent hemorrhages after the birth of the child in former labours, I have made it a rule to keep them in an erect position, till the waters were discharged by the spontaneous breaking of the membranes, and the child was on the point of being born. By this method it appeared clearly to me, that the uterus acted more favourably, the placenta came away more naturally, and the quantity of blood lost was often much diminished."*

Now, we would ask any one at all conversant with the economy of the uterus during and after labour, how an erect position, the sudden evacuation of the waters at the moment "the child was about to be born," can possibly contribute to the only circumstance at all available in the case under consideration, namely, the permanent contraction of the uterus? In the first place, an erect position will always be attended with a quicker circulation than a recumbent one; it will permit the waters to escape with more suddenness and rapidity than a horizontal one, and, consequently, the risk of atony must be increased. It is admitted, upon all hands, and by Dr. D. himself, in other places, that if the uterus be too suddenly emptied, there will be a risk of inertia, or, at least, of great irregularity of action; if this be so, how can the interest of the woman be improved by this practice? All writers upon midwifery declare, that the suddenly emptying of the uterus by the evacuation of the waters, and the rapid delivery of the child, are the most common causes of the atonic state of this organ; yet we are advised by Dr. D. to permit all this, with a view to the

* Introduction to Midwifery, Francis's ed. p. 494.

prevention of it! So far all theory is against it; we will now appeal to our own experience to prove it to be a bad practice.

There was a period of our lives at which we looked upon Dr. Denman to be the highest authority in midwifery; and at that time almost implicitly followed his instructions upon every point of practice, and consequently upon the subject in question, as being one of high importance: but in doing so, we were persuaded, from sufficient experience of the plan, that it not only did not answer the end for which it was proposed, but that it was decidedly mischievous; it was of course abandoned, so soon as we convinced ourselves of this truth, and substituted one almost diametrically opposite, with which we have every reason to be perfectly well satisfied. As it was impossible, *à priori*, to determine which patient might be attacked with a flooding after delivery, it became of consequence to follow some general rule with all, (where practicable,) by which the risk of this accident should be diminished. It therefore suggested itself, that whatever would insure, with most certainty, the tonic contraction of the uterus, would best guard the patient against the contingency of a flooding; and what appeared to us the most rational to insure this, was to take of the distension of this viscus as gradually as possible, by the early evacuation of the waters; and to diminish the force of circulation as much as was practicable, by making the woman preserve a horizontal posture when the pains became urgent, and to interdict stimuli of every kind, as wine or any other liquor, heat, and all unnecessary exertion.

Let us now make ourselves understood, when we say "the early evacuation of the waters." It is a fact notorious to every practitioner, that the membranes, if left entirely to the force of the uterus, would preserve their integrity in many, and perhaps in most instances, until the child was about to be pushed through the os externum. If this plan then were to be pursued, the uterus would be suddenly, instead of gradually emptied, and consequently the risk attendant upon this, (as agreed upon by all,) would be in-

curred, and the most probable consequence would be a flooding. But if, instead of this, we rupture the membranes so soon as the labour is active, and the os uteri sufficiently dilated or easily dilateable, we should give opportunity and time for the uterus to contract, before the child would be expelled, and thus guard against the evil we were apprehending. The uterus would, by this plan, diminish in size, in the exact proportion to the water displaced; it would apply itself to the whole surface of the child, the inequalities of which would serve as an important and healthy stimulus, (all things being equal,) and prompt it to more certain contraction.

Daily experience proves the justness of this reasoning and practice; for how rarely do we see a flooding follow those deliveries where the liquor amnii has been discharged even some hours previously! and what can produce the exemption from this accident, but the uterus having had sufficient time and opportunity to contract? It is true, that this alone may not always be sufficient to protect the woman against an hemorrhage, but we are convinced, from many years of experience, it is the principal one. The directions given in this paper for the delivery of the body of the child, after the head has escaped, and the abdominal frictions, must also be considered as matters of great moment, and should never be neglected, especially with women who are "prone to flood" after delivery.

There is a cause of hemorrhage, which we have not noticed, namely, the "inversion of the uterus," as we intend at some leisure moment to make it the subject of another paper.

ART. VII. *An Account of a peculiar Venous System,* observed in various animals.* By LOUIS JACOBSON. Translated for the Philadelphia Journal, from the Journal de Physique, &c. By JNO. D. GODMAN, M. D.

ANATOMICAL investigations continued for many years, have led to the discovery of a new and unknown system belonging to a great number of animals. The first observations made on this subject, were offered by me to the Philomathic Society of Paris—the latter ones were addressed to the Royal Society of Copenhagen. Though many causes, at present, prevent the publication of these observations in as perfect a form as could be wished, yet we have thought it well to subject the outlines of this *venous system* to the inspection and criticism of the learned.

In man and the other mammalia, all the veins, excepting the vena portarum, are so connected as to form one continuous system, which conveys the reflux blood from all the parts of the body to the heart. In these animals the veins which come from the inferior or posterior part of the body, unite in a common trunk, whence the vena cava is formed, and the blood is conveyed directly to the heart.

But this common arrangement by no means exists in all the vertebral animals. A *new* and *peculiar* venous system exists, which is *not directly* connected with the other veins of the body. By means of this newly observed system, the blood which flows from the middle or posterior parts of the body, *does not* enter the inferior vena cava, and thus reach the heart—but is carried *to the kidneys*, or to the kidneys and liver.

This peculiar system is observed in *birds, reptiles and fishes*: its primary form is subject to three degrees of modification.

The first, which may be considered the *prototype* of the rest, is of this kind: from the skin and muscles of the mid-

* De systemate venoso peculiari in permultis animalibus observato: auctore Ludovico Jacobson.

dle of the body small branches arise, which form many trunks : these coursing towards the kidneys, again separate into branches in the substance of these organs, and are there variously distributed.

The second modification arising from the first, is that in which the veins returning from the posterior part of the body are received into this system. The caudal vein, which brings the blood from the skin and posterior muscles, forms two branches, which having received some veins returning from the middle of the body, go to both the kidneys and distribute their branches in the substance thereof.

In the third modification, the veins of this system are formed in the same manner as in the preceding, except that the caudal vein, or another returning from the posterior parts, also sends a branch to the vena portæ. The reflux blood from the middle and back part of the body in the first and second modification of this system, is carried to the *kidneys solely*—while in the third variety, both to the kidneys and liver.

The inferior vena cava of the *common venous* system, in the second and third modification, is formed by the veins returning the blood from the kidneys and testicles, or from the ovaries. In the first case, the caudal vein receives the returning veins of the kidneys, is joined by the veins of the testicles or ovaries, and in this way forms the inferior or ascending cava.

We shall now endeavour briefly to explain how this singular venous system is composed in various classes of animals.

In *fishes* it appears in all its modifications. In many kinds of fish, where the venous system is formed according to the first modification, all the blood of the skin and muscles which form the middle of the body, from the head to the root of the tail, is taken up by venous branches. These then concurring in many single trunks, run in different directions towards the *kidneys*, and are dispersed throughout their substance.

The caudal veins terminate in a common trunk, flowing

between the kidneys, where, when they have received the recurrent veins of these organs, together with the veins of the testicles and ovaries, they are conjoined to form the inferior vena cava. This modification is the prototype of this system of veins, as the branches composing it are very generally present in the other varieties. The venous system thus arranged, is found in many genera, as in the cyprinus, clupea, &c.

Another modification is certainly most frequent in fishes. All the blood of the posterior, and very often even of the middle part of the body, flows *to the kidneys*. The caudal vein as it reaches the kidneys is already separated into two principal branches, which, with the exception of single trunks from the middle of the body, are distributed throughout the kidneys. Genera possessing large kidneys have a part of the veins as single trunks going from the middle of the body to them.

The vena cava arises thence as the veins returning the blood from the kidneys (the *renal* veins, properly so called, are returning veins,) are united with the veins of the testicles and ovaries.

This venous arrangement is found in the ray, pike, flounder, &c.

The third modification is nearly similar to the above, differing from it only in this, that the caudal vein besides the branches going to the kidneys, sends a large branch to the vena portæ, so that the blood of the posterior and middle part of the body is conveyed partly to the liver. Nevertheless the vena cava is formed in the same way as in those fishes whose venous system is disposed according to the second variety. It is more rare, however, in this class of animals, as far as I have yet examined, except in the *muraena* and *lophius*.

In all the *amphibious* animals, this venous system is arranged as in the third modification, differing, however, as their tails or posterior extremities vary in magnitude.

Moreover, the organ proper to the class of amphibious animals, gives some veins to this system. This organ con-

sists either of a double membranous sac opening into the cloaca, and very often containing a pellucid liquor, or of an oblong membranous sac filled with fat, and not communicating with the cloaca.

We shall now describe the modifications of this venous system, as presented in various genera of these animals.

Serpents. In these animals, the peculiar organ is composed of two very long membranous sacs, filled with fat. The system of veins is formed from the caudal vein, which separates to go to each kidney. These veins going to the kidneys, send an anastomosing branch to the vena portæ. The veins of the peculiar organs, and of the anterior abdominal muscles, form a primary trunk, which enters the vena portæ before it passes into the liver. But after it has entered this organ, it receives some smaller venous trunks from the anterior abdominal muscles.

The vena cava arises from the *proper renal* veins, returning the blood from the kidneys, which unite with the veins of the testicles or ovaries.

Lizards. The peculiar organ of these animals is formed of a membranous and cellular sac filled with fat, and placed at either side of the inferior part of the belly. The caudal vein unites with the ischiatic vein, and with a branch of the crural vein, and in this manner forms the *renal conferring** vein. Another branch of the crural vein confluent with an analogous branch of the other side, receives the veins arising from the peculiar organ and inferior abdominal muscles, goes towards the vena portæ, and pours the blood into it before the latter enters the liver. Some veins arising from the anterior part of the abdominal muscles, cross the liver and flow into the trunks of the vena portarum. The vena cava is formed as in the animals before mentioned.

Turtles. The peculiar organ of these animals is of great magnitude. It is composed of cellular membrane, extended throughout the whole inferior part of the body, and is

* Advhentem.

filled with fat. The caudal vein, variously joined with the veins of the inferior extremities, forms the *conferring* renal veins of each side. The rest of the crural, with veins returning from different parts of the peculiar organ, partly form a secondary and adscititious *conferring* renal vein, and partly joined to the superior part of the abdomen, separately, or conjointly, at the inferior part, to the liver.

The vena cava is formed from the *refluent* veins of the kidneys, testicles, or ovaries, in the same way as in the other animals.

Frogs. Their peculiar organ is a membranous sac joined to the cloaca. The caudal vein, which is small, joins with the ischiatic, and having received an anastomosing branch from the crural vein, forms the *conferring* renal. Another branch arising from the crural, goes to the lower part of the abdomen, and there associates with an analogous branch of the other side, receives the refluxing veins from the peculiar organ and forms a common trunk, which having received the veins arising from the muscles of the inferior part of the belly, flows into the porta. The origin and arrangement of the vena cava, is the same as in the other *amphibia*.

In the class of *birds*, we find this venous system composed and arranged according to the third modification—and indeed we have remarked only few and slight variations in this class. But in these animals the transition to the (arrangement of) *mammalia* is observed, in which this newly discovered venous system is united with the common one.

The caudal, ischiatic, and crural veins, are variously conjoined, and flow to the kidneys, where the branches are dispersed, sending a larger anastomosing branch to the vena portarum. But the crural vein having sent a branch to the upper lobe of the kidney, is also joined to the lower as well as the ischiatic, and sends a middle branch, which goes to the vena cava.

This venous system in animals of different classes, differing from each other in structure and organization, exhibits a perfect and absolute analogy of composition and arrangement.

From anatomical examination, and from many experiments made on living animals, I am persuaded that this venous system performs the office of conveying the venous blood, reflux from the posterior or middle part of the body *to the kidneys*, or to the kidneys and liver: and in these organs is subservient *to the function of secretion*. Hence in birds, fishes and reptiles, the secretion of the kidneys is effected by veins and from venous blood.

In relation to the formation and origin of this system, examination of the embryos of birds and some amphibious animals, have convinced me, that its origin is owing to the umbilico-mesenteric veins. It is therefore probable, that this system is the first to begin the exercise of its functions.

I have, moreover, continued my investigations in inferior animals, and have found even in mollusca, many veins to go to the organ, called "*sacculus calcarius*," and there to disperse: but the liquor secreted into this organ, (in mollusca gasteropoda,) contains an appreciable portion of *uric acid*. Wherefore I have concluded, that this organ is analogous to the kidneys of vertebral animals.

As in very many insects, the vessels called biliary, are found to contain uric acid, I think these organs should be received as of the same order.

The observations of this singular venous system, may possibly aid in the explanation of many important parts of physiology. But before I attempt to explain this subject more fully, I earnestly ask and wish, that such as have an opportunity of examining the more rare animals, especially those forming a transition between the various great families, will kindly communicate their observations, and particularly, should they discover that any part has not been examined with sufficient accuracy, that they will point it out.

ART. VIII. *Extracts from Magendie's Formulæ, for the Preparation and use of several new Medicines. Translated from the French.* By WILLIAM DARRACH, M. D.—(Continued from No. 10.)

IV. PRUSSIC ACID.

IN a memoir to the Academy of Sciences, November, 1817, the happy results were made known, which followed the use of the prussic acid, in the treatment of the complaints of the chest. It has, since that period, been employed by many members of the profession in Europe, and the United States of America. Every where the success with it has been the same*—which circumstance, and the powerful nature of the article itself, render it one of the most interesting medicines the healing art possesses. It was discovered in the year 1780, by Scheele—mixed, however, with water, the proportion of which was not always the same. To M. Gay Lussac, we are indebted for it in a state of purity, and concentration.†

Physical Properties.

This acid, at the common temperature, is fluid, transparent, and without colour. To the taste, it is first cold, then acrid and irritant: the tincture of tournesol is slightly reddened by it. The odour is very strong, and perhaps very hurtful—to be supported only when mixed with a great quantity of air, by which it becomes the same as that of the bitter almonds.

Chemical Properties.

The prussic acid is very volatile. It boils at 26.5° , under a pressure of 0^m 76, and at 10° it sustains a column of mercury of 0^m 38: the congelation of it, however, is effected

* This is not true. Experience has very much lessened the reputation of this remedy in the United States. It is now rarely prescribed in this city, and we suspect, very little in any part of this country.—EDITOR.

† See *Annales de Chimie*. Vol. lxii. p. 128, and vol. xcv. p. 136.

readily at 15° —and also, if a few drops of it be put on paper, the portion which almost instantaneously evaporates, produces sufficient cold to effect a crystallization of the rest. It is the only liquid which possesses this property. This acid is but little soluble in water, and therefore, when agitated with ten or twelve times the quantity of it, the acid collects afterwards on the surface, as oil and ethers. Alcohol easily dissolves it. Left alone in close vessels, it becomes decomposed sometimes in less than an hour: rarely can it be preserved beyond five days.

Preparations.

This acid is obtained, by treating the crystallized deuto-cyanide of mercury, with two-thirds the weight of hydro-chloric acid, in a liquid and slightly volatile state, in an apparatus composed of a *cornue tubulée*, affixed to a retort, containing a quantity of chloride of calcium and chalk, which itself communicates with another of smaller size, destined to receive the product. These retorts should be surrounded with a mixture of ice and sea salt. The deuto-cyanide of mercury and the acid, are introduced successively into the *cornue*, which is then a little heated. A slight ebullition is soon effected, owing in part to the evaporation of the prussic acid, which is formed and becomes condensed in the first retort, with a little hydro-chloric acid and water. When the quantity of water is very considerable, it becomes necessary to suspend the process, to purify the product already obtained—which is effected by separating the first retort from the *cornue*, and substituting water at 32 or 33° in the place of the ice and salt mixture—by which means, the hydro-cyanic acid passes alone into the smaller retort, and the water and acid which previously volatilized with it, are now retained—the water by means of the chloride of calcium, and the hydro-chloric acid by means of the chalk.

Action on Animals.

One drop of pure prussic acid, introduced into the mouth of the stoutest dog, produces death after two or three deep,

quick inspirations. The smallest quantity applied to the eye, is followed, though not so soon, by the same results. One drop of it mixed with a few drops of alcohol, injected into the jugular vein, kills the animal as instantly, as if struck by lightning. Animals thus destroyed have, the moment after death, no irritability left in the muscles.

Action on Man in health and disease.

The administration of the pure prussic acid, is followed in man, with the same effects as in animals. The vapour of it, even, should be carefully avoided—since the inspiration of it causes acute pains in the breast, and an oppression which continues several hours. In the cases of disease, it is beneficial, where there exists excessive irritability of particular organs. The doses being repeated at too short intervals, head ache and a sort of vertigo are produced, which continue, however, only a few minutes.

Cases in which this Acid is used.

Diluted sufficiently, it is employed with success in all the cases of morbidly increased irritability of the pulmonary organs—in nervous and chronic cough—asthma and pertussis—in the palliative treatment of phthisis—and there are a great many observations to prove the power of it to cure this complaint in its first stage. It has been used with success, in England, in the hectic cough, symptomatic of an affection of another organ, and also in some species of dyspepsia. In Italy, it has also been successfully administered to calm the too great irritability of the uterus, in cases of cancer, and to moderate the action of the heart in almost every acute disease.

Mode of employing it.

The acid, as prepared by Scheele, has not the medicinal properties sufficiently constant, which is owing to a want of precision in the description of his process. It is better to make use of that prepared after the method of Gay Lussac, diluted with six times its quantity of distilled water, or 8.5

times its weight. This mixture is denominated the medicinal prussic acid.

The following are the formulæ by which this article has been administered.

Pectoral Mixture.

℞ Medicinal prussic acid, ℥i.

Distilled water, ℥i.

Refined sugar, ℥i.

The dose of this medicine is a table-spoonful, to be taken night and morning. It can be increased to six and even eight spoonsful within the twenty-four hours.

Pectoral Potion.

℞ Infusion of *sierre terrestre*, ℥ii.

Medicinal prussic acid, *gtt.* xv.

Syrup of guimauve, ℥i.

The dose of this potion is a table-spoonful, to be repeated every three hours.

Cyanic Syrup.

℞ Syrup of well refined sugar, ℥i.

Medicinal prussic acid, ℥i.

This syrup is substituted for the common pectoral syrup, or is added to these, as an ingredient.

V. SOLANIN.

This alkali has been lately discovered by Mr. Desforres, an apothecary at Besançon, in two plants, of the family of the solana—the *solanum nigrum* and *solanum dulcamara*.*

Preparation of Solanin.

The solanin is found most abundant in the berries of the *solanum nigrum*, where it exists in the state of *malate*. To obtain it, the filtered juice is treated with ammonia,

* The leaves themselves of the *dulcamara* afford this substance, which is not the fact with the *nigrum*.

which produces a greyish precipitate. This is received upon a filtre, washed, and treated with boiling alcohol. By evaporation the salifiable base is obtained, which, if the berries be fully ripe, will be found pure—otherwise, it will be combined with a quantity of clowplylle, which cannot be separated without much trouble.

Properties of Solanin.

When this substance is pure, it appears under the form of a white powder, opaque, and, sometimes, pearly—without odour—and of a slightly bitter and nauseous taste.*

The salts formed with it are uncrystallizable, and appear, on evaporation, as a gummy transparent mass, which is easily pulverized. The solanin is insoluble in cold water: in hot water, less than $\frac{1}{8000}$ is dissolved, and in alcohol also in very small quantity. The alkaline properties of it are not very obvious on the curcuma: reddened tournesol, however, is perfectly restored by it to the blue colour. It unites with acids at a low temperature, and affords, when the process is conducted with care, a perfectly neutral solution. A very small quantity of acid is necessary to saturate it, as is the case with all the vegetable alkalies.

Action on Animals.

The solanin in doses of two to four grains, introduced into the stomach of a dog or cat, excites violent vomitings, followed soon by drowsiness which lasts several hours. Eight grains of it have been given to a kitten, without producing death: after violent vomiting, the animal was in a state of somnolence, which lasted nearly thirty-six hours.

Action on Man.

If a very small quantity be swallowed, great irritation is excited in the throat—and in the mouth a nauseous and

* Its bitter quality is most developed in acid solution, and particularly in acetic acid.

slightly bitter taste—which is much more evident if the substance be used in the form of the acetic acid solution. The acetate is the only one of the salts which has been much used. The dose is one-fourth of a grain. It produces nausea, though no subsequent disposition to sleep, as in animals. It appears, then, that the solanin, like opium, can produce vomiting and sleep, but the power to effect the former is greater than that of opium, and the latter far less.

Cases in which it may be used.

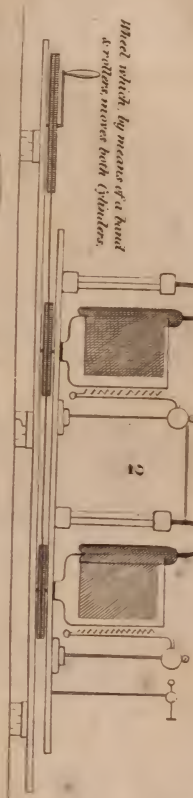
The employment of this substance has not been attempted. It would seem to be preferable, however, to the *solanum nigrum* and *solanum dulcamara* in all cases where these medicines are indicated.

ART. IX. *Essay on the Question, whether there be two Electrical Fluids, according to Du Faye, or one, according to Franklin.*
By ROBERT HARE, M.D. Professor of Chemistry in the University of Pennsylvania.

BY those who allege the existence of two electrical fluids, much stress has been laid on the fact, that light bodies, when negatively electrified, separate from each other no less, than when in the opposite state. The absence and presence of a fluid, cannot, it is said, have the same effect of producing repulsion. To this, it has been answered, that the separation of such light bodies is not the effect of repulsion, but of an attraction between them and the surrounding medium; which must equally ensue, whether they be electrified minus or plus: since, in either case, that diversity of electrical excitement between them and the surrounding medium, arises, which is always productive of attraction.

In support of this view of the question, I propose to make a few observations. In an electroscope with moveable coat-

Apparatus for proving that vitreous & resinous electricity are only relative states of the same fluid.



Wheel which, by means of a hand & ratchet, moves both cylinders.



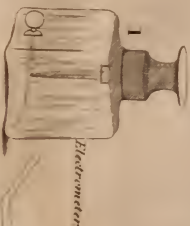
Self-acting compound blowpipes, by Atkinson.

This is a view of half, adjusted to the other thus.

1

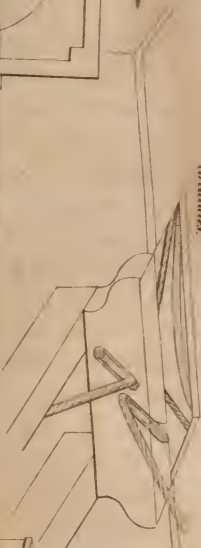
Tube by which proceed the opposing jets of vapour.

Single leaf

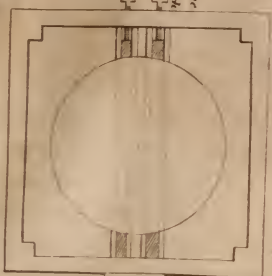


Electrometer

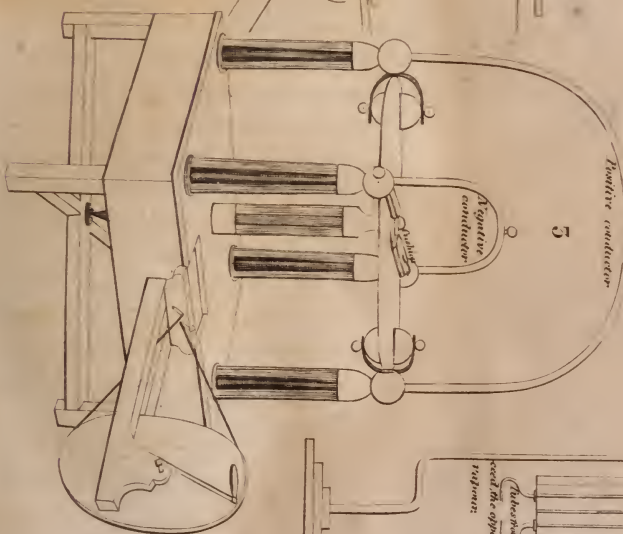
Enlarged view of the mode in which the hand circulates.



Section of the screws by which the hand is tightened.



Horizontal section of the wheels the hand is tight.





ings, like the galvanometer of Mr. Pepys,* the divergence of the leaves is facilitated, in proportion as the coatings are approximated to them. In this case, it must be admitted, that there is an attraction between the coatings and the leaves; for, were repulsion between the leaves the cause of their divergence, the approach of the coatings would not increase it.

It may, however, be supposed, that the repulsion between the similarly excited leaves, being counterbalanced, more or less, in all cases, by the electric tension of the surrounding medium, the coatings may permit the electric fluid to recede through them with greater facility; and thus lessen the electric tension, in the direction in which they are situated.

Were this supposition to avail in the case of an electrometer with two leaves, it cannot apply in the case of an instrument, lately contrived by me, in which, uninfluenced by the idea, that repulsion is the cause of electrometrical indications, I suspend only a single leaf. A brass ball, one-fourth of an inch in diameter, is so situated, that it may be made to touch the leaf, or retire from it to the distance of an inch, by means of a screw which supports it. (See plate I. fig. 1.) This instrument is evidently more simple, and is far more sensitive, than any instrument with two leaves heretofore contrived.†

It will be admitted, I presume, that the contact between the ball and the leaf must result from attraction, whether the leaf be minus or plus; and that this would not cease to be true, although a second leaf were, as usual, suspended beside the first.

In a common electrometer, it is usual to have pieces of tin foil pasted on the glass case opposite the gold leaves. If attraction be exercised between the leaves and coatings, when moveable, it must also be exercised by the fixed coat-

* See Tilloch's Philosophical Magazine, vol. x. p. 38.

† By means of an instrument with a single leaf, since constructed, I am enabled to detect the electricity produced, by one contact, between a copper and a zinc disk, each six inches in diameter.

ings thus pasted on the glass. It is therefore established, that when coatings, whether moveable or fixed, are employed, the divergence is not caused by repulsion. It cannot, then, be reasonable to ascribe it to repulsion, though no coatings should be present, as when the leaves are suspended where nothing can attract them unless the surrounding air; especially as the air may be shown competent to perform the same office as the coatings, though not so well, on account of its presenting less matter within the same space. The lightness and mobility of the air, is no obstacle to this conclusion. When equally acted upon in all directions, as it must be in the case in point, air resists like an arch, or an elastic solid. The electric attraction may have a tendency to condense it about the sphere of excitement, but cannot move one portion more than another. This opinion of the agency of the air, is supported by the fact, that, in proportion as an exhausted receiver is larger, so will the difficulty of producing a divergency in the electrometrical leaves, situated within it, be increased. It would be difficult to procure a receiver so large, that gold leaves might not be made to diverge electrically in it, when exhausted; but leaves of light paper, which will easily be made divergent, in pleno or in vacuo, in a small vessel, will cease to be affected by a like influence, if suspended in an exhausted receiver sufficiently large. I am aware, that the air prevents the electric fluid from escaping, by its insulating power, and that when it is removed, electrometrical leaves cannot be sustained in a state of excitement much higher than the rare medium about them. Thus situated it may be alleged, that repulsion can no more act between them, to produce separation, than it does without them to keep them together. But this reasoning would apply, equally, whether they be in a large, or a small receiver; and, of course, does not account for the influence which the size of the receiver has on the divergency.

I will now adduce some additional facts and arguments, in opposition to the doctrine of two fluids.

According to Franklin, positive and negative, as applied to electricity, merely designate relative states of the same fluid. If, of three bodies, the first have more electricity than the second, and less than the third, it will be positive with respect to the second, and negative with respect to the third. According to Du Faye, there is a radical difference between vitreous and resinous electricity; and though separately exercising intense action, they neutralize each other by union. It is universally admitted, that the fluid evolved by the prime conductor of a glass cylinder machine, and that evolved by the cushion, are of different kinds or states. According to the American theory, the first is positive, the last negative. According to the French theory, the first is vitreous, the last resinous. *

Let there be two machines, No. 1, and No. 2, so arranged,* that the positive or vitreous conductor of one, may communicate with the negative or resinous conductor of the other. In this case, the conductors, thus associated, form effectively, but one conducting mass; and one body, with a cushion on one side, and collecting points on the other, might be substituted for both. When this compound apparatus is put into action, it will be found that the intermediate conductor, tested by the resinous conductor of No. 1, is vitreous; but that it is resinous, when tested by the prime or vitreous conductor of No. 2. This result agrees with Franklin's doctrine, as above stated; but how can it be reconciled, with the idea that the electricities are radically different, that the same state of excitement, may be confounded with either. It may, indeed, be alleged, that the fluid is never completely vitreous, or resinous, or neutral; that although the proportion of either fluid be great, it may still be increased: that one conductor may be more vitreous than a second, but less so than a third—or more resinous than a second, but less so than a third; and hence, in either case, may give sparks with either. This is, to me, never-

* See Plate I. Figure 2.

theless, a complicated and unsatisfactory solution of the difficulty.

Pursuant to the Franklinian theory, there can be no really neutral point; though the earth, as a reservoir, infinitely great, compared with any producible by art, furnishes an invariable standard of intensity, above and below which, all bodies electrically excited, are said to be minus or plus.* It is perfectly consistent with this theory, that sparks should pass, as they are often seen to do, from conductors in either state; not only from one to the other, but to bodies nominally neutralized by their communication with the earth. As the difference between the electrical states of the oppositely electrified bodies, must be greater than between either of their states, and that of the great reservoir, the sparks between them will be longer, but, in all other characteristics, will be the same. This practical result, is irreconcilable with the doctrine of two fluids, according to which, there can be no electricity in the earth, which is not in the state of a neutral compound, formed by these opposite electricities. For it would be an anomaly, to suppose, the re-action between a neutral compound, (a *tertium quid*,) and either of its ingredients, to resemble in intensity, and in its characteristic phenomena, the re-action which arises between the ingredients themselves. As well might we expect aqueous vapour to explode with hydrogen or oxygen gas, as they do with each other. Nothing can be more at war with the doctrine of definite proportions, of multiple volumes, and every analogy established by the chemistry of ponderable matter, than that two substances should combine, in every possible proportion, and

* In some discussions which took place some years ago, between Mr. Donovan and Mr. De Luc, in Nicholson's Journal, it was erroneously charged against Franklin's doctrine, that he supposed that there was an absolute state of neutrality. The doctrine of one universal fluid, is, to me, obviously irreconcilable with that idea, otherwise than as above explained. The quantity of electricity in the globe, is as unalterable in any sensible degree, as the quantity of water in the ocean; and it may therefore be assumed to be invariably the same.

with precisely the same phenomena; that they should be capable of neutralizing each other, and yet eagerly act as if never neutralized.

An argument in favour of the existence of two fluids, has been founded on the appearance of two burs, when a card is pierced by an electric discharge. This phenomenon is as difficult of explanation, agreeably to Du Faye's theory, as Franklin's. If a current of electricity, flowing in one direction, should produce a bur, in piercing a card on the side towards which it flows, two currents should be productive of none, one current being precisely adequate to neutralize the other, according to the premises. The appearance may be explained by either doctrine, as resulting from intense attraction between the paper and the knobs transmitting the discharge.

It has been observed, in favour of the French theory, that, when the hands are made the medium of a feeble discharge, a shock is felt simultaneously in the fingers only of each hand; that, as the shock is made stronger, it affects the wrist, the arm, and finally the chest. This is considered as proving the operation of two distinct fluids; for, were the shock the effect of one current, it would be experienced equally, though feebly, throughout the whole of the circuit. Admitting that such a current were necessary to the discharge, agreeably to Franklin's theory, it ought to be felt most in the fingers, where it is most concentrated, as torrents flow with greater violence in proportion as their channels are narrowed. A current passing from one coating of a Leyden jar to another, is far from being necessary to restore the equilibrium of its surfaces. As soon as a circuit is established between them by the hands, the electricity in the hand which touches the negative surface, flows into it to supply the deficiency; while the hand which touches the positive surface, receives from it a surcharge. It is a case analogous to that of a syphon, in which a fluid, forcibly displaced from the level, is suddenly relieved from restraint; both columns would move at the same time, and with a velocity greater in any part, in proportion as the di-

ameter should be less. The deficit caused in the hand in contact with the negative coating, is supplied by electricity from the arm; and this, again, from the body, where if the charge be inconsiderable, it is so much diffused as not to be perceived. In like manner, a *slight* surcharge received by the hand in contact with the positive coating, is diffused, as it proceeds up the arm to the chest, so as to be too feeble to be felt there.

A piece of tin foil, interposed between paper, has been found not to be perforated by a charge, which had pierced the paper on both sides of it.

If there were but one current, it is alleged that tin foil, situated as above mentioned, would be pierced during its passage from one coating to the other—a *fortiori*, then, it should be pierced, if two currents be necessary, passing each other. Besides, the explanation afforded, in the case of a shock received by the hands, applies to this: owing to its great conducting power, the tin foil diffuses the attraction from each side, so much, as not to be damaged by it.



ART. X. *Description of an Electrical Plate Machine, the Plate mounted horizontally, and so as to show both negative and positive Electricity. Illustrated by Engravings.* By ROBERT HARE, M.D. Professor of Chemistry in the University of Pennsylvania.

THE power of electrical plate machines, has been generally admitted to be greater, than that of machines with cylinders. The objection to the former has been, the difficulty of insulating the cushions, so as to display the negative electricity. Excepting the plate machine contrived by Van Marum, I have read of none in which this difficulty has been surmounted. It is still insisted upon, by respectable electricians, as if it had not been sufficiently removed by his contrivance.

I presume, therefore, that a description of a plate ma-

chine, by which both electricities may be shown, and which, after two years' experience, I prefer on every account, may not be unacceptable to the public.*

My plate (thirty-four inches in diameter) is supported upon an upright iron bar, about an inch in diameter, covered by a very stout glass cylinder, four inches and a half in diameter, and sixteen inches in height, open only at the base, through which the bar is introduced, so as to form its axis. The summit of the bar is furnished with a block of wood, turned to fit the cavity formed at the apex of the cylinder, and cemented therein. The external apex of the cylinder is cemented into a brass cap, which carries the plate. The glass cylinder is liable to no strain; it is only pressed where it is interposed between the block of wood within, and the brass cap without. The remaining portion of the cylinder bears only its own weight, while it effectually insulates the plate from the iron axis. The brass cap is surmounted by a screw and flange; by means of which, a corresponding nut, and disks of cork, the plate is fastened. A square table serves as a basis for the whole. The iron axis, passing through the cover of the table, is furnished with a wooden wheel of about twenty inches diameter, and terminates below this wheel in a brass step, supported on a cross of wood, which ties the legs of the table diagonally together. The wheel is grooved, and made to revolve by a band, which proceeds from around a vertical wheel, outside of the table. This external wheel has two handles; it may of course be turned by means either of one or both. It is supported on two strips of wood which, by means of screws, may be protruded, lengthwise, from cases, which confine them from moving in any other direction. By these means, the distance between the wheels may be varied at pleasure, and the tension of the band duly adjusted.

Nearly the same mode of insulation and support which is used for the plate, is used in the case of the conductors. These consist severally of arched tubes of brass, of about an inch and a quarter in diameter, which pass over the

* See Plate I, Fig. 3.

plate from one side of it to the other, so as to be at right angles to, and at a due distance from each other. They are terminated by brass balls and caps, which last are cemented on glass cylinders, of the same dimensions, nearly, as that which supports the plate. The glass cylinders are suspended upon wooden axes, surmounted by plugs of cork, turned accurately to fit the space which they occupy. The cylinders are kept steady, below, by bosses of wood, which surround them. In this way, the conductors are effectually insulated, while the principal strain is borne by the wooden axes.

I consider this mode of mounting an electrical plate preferable to any with which I am acquainted. The friction arising from the band may render the working of the machine a little harder for one person, with one hand; but then it affords the advantage, that two persons may be employed for this purpose, or one may use both hands at once. The intervention of the band, secures the plate from being cracked, by a hasty effort to put it into motion, when adhering to the cushions, as it does at times; and the screws, by means of which the distance of the wheels is increased, obviate the liability of the band to slacken with wear.



ART. XI. *Description of an improved Blowpipe, by Alcohol, in which the inflammation is sustained by opposing jets of vapour, without a lamp: Also, of the means of rendering the flame of Alcohol competent for the purpose of Illumination.* Illustrated by an Engraving. By ROBERT HARE, M. D. Professor of Chemistry in the University of Pennsylvania.

IN the ordinary construction of the blowpipe by alcohol, the inflammation is kept up, by passing a jet of alcoholic steam through the flame of a lamp, supported, as is usual, by a wick—otherwise, the inflammation of the vapour does not proceed with sufficient rapidity, to prevent the inflamed portion from being carried too far from the orifice of the

pipe; and being so much cooled by an admixture of air, as to be extinguished. By using two jets of vapour, in opposition to each other, I find the inflammation may be sustained without a lamp. If one part of oil of turpentine, with seven of alcohol, be used, the flame becomes very luminous.

In order to equalize and regulate the efflux, I have contrived a boiler, like a gazometer. It consists of two concentric cylinders, opening upwards, leaving an interstice of about one quarter of an inch between them; and a third cylinder, opening downwards, which slides up and down in the interstice. The interstice being filled with boiling water, and alcohol introduced into the innermost cylinder, it soon boils and escapes by the pipes. These pass through stuffing boxes in the bottom of the cylinder. Hence their orifices, and of course the flame, may be made to approach nearer to, or recede further from, the boiler.

The construction of this instrument, which I call the compound blowpipe by alcohol, may be understood from the engraving (Plate I, Fig. 4.)

The idea of making the flame of hydrogen gas, or alcoholic vapour, more luminous, by an admixture of oil of turpentine, occurred to me in 1819; and I put the idea into practice, in the summer or succeeding winter of that year, when my pupils witnessed the result.

It seems, that Mr. Morey, by another catenation of ideas, was led to a similar inference, employing, in an alcohol blowpipe, whiskey and turpentine. He endeavours so to regulate the efflux of a single jet of the vapour of these fluids, as that it may continue to burn, when once lighted.

This process is too troublesome and precarious, for ordinary use. A mixture of alcohol and turpentine, are burned with a wick in a lamp, in the same way as oil, according to my plan. It is of course perfectly practicable, and I shall be surprised if it be not adopted in the western country, where alcohol may be had very cheap, and oil must be comparatively dear.

CASES.

ART. XII. *Case of extensive Caries of the fifth and sixth Ribs, and disorganization of the greater part of the right lobe of Lungs, with a description of the operation for the same, &c.*
Communicated by MILTON ANTONY, M.D.

ON the 3d of March 1821, I made my first visit to Elmon Allen, an interesting youth about seventeen years old. The preceding part of the history of his case, was substantially as follows:

Between two and three years before, he had, by a fall from his horse, received a severe injury on the right side, whereby the sixth rib was believed to have been fractured. Considerable ecchymosis immediately appeared. As the pain, however, did not long continue severe, no dressing whatever was applied to the wound, and in a few days, little attention was paid to the case. The local irritation, and ecchymosis, measurably, though not entirely abated—and during the two years next following, he was frequently able to walk or ride, without serious inconvenience. Several times, however, during this period he was, in consequence of irritation and tumefaction produced in the injured part by over exertion or accident, forced to keep his bed for days, and sometimes for weeks. Such at one period was the inflammation, that a blister was raised on the part. Thus the case proceeded, until about the end of 1820, when the pain in the part became distressing. Soon after this, a pungent and extremely severe pain was fixed at the vertebral and sternal articulations of the injured rib. So great was the local irritation, that a constitutional disturbance was excited, and a fever of hectic type ensued. This continued with severe pains at the extremities of the sixth rib, with a cessa-

(Section of Portions of the 5th & 6th Ribs.)



Fig. 1. The sternal fragment of the 5th rib

2. Its vertical fragment

3. The sternal articulation of the 6th rib

4. Vertical fragment of the 6th rib

5. Retracted cut edge of the wound

6. Represents the removed fragment of the 5th rib.



tion of pain in the wound, which was followed by an *unpleasant feeling of weight and distension*. About this time it was observed, that there was little or no motion in the right side of the thorax in respiration.

On my arrival, I found the patient in good spirits, though considerably emaciated, and had not rested at night for some length of time, without laudanum. Respiration was laborious, with much exertion, and dilatation of the nostrils, at each inspiration. The motion of the heart was strong and sluggish, and imparted to the touch, a sensation somewhat similar to that which it gives when surrounded by water in the pericardium, or where there are adhesions to that membrane. Each pulsation was distinctly perceptible to the eye, in three intercostal spaces on the left side of the thorax: but these pulsations had the appearance of slow, heavy undulations. No more respiratory motion was perceptible in the right side, than appeared to be the effect of the repeated inflation of the left lobe, and consequent motion of the parietes of the left side, to which the parietes of the right were attached. The pulse was laborious, more than ordinarily full, and in frequency, about one hundred in a minute. The tumefaction of the part was in the direction of the ribs, extending from the sternum to the anterior edge of the latissimus dorsi—about two inches in width, and one in height at the most elevated point, which was several inches, immediately over the injured part of the sixth rib. The skin covering the tumour was entire, and without discoloration, or change of appearance, except a slight enlargement of superficial vessels.

My friend, Dr. Pugsley, an aged, experienced, and accurate surgeon and anatomist, whose obliging assistance I had the satisfaction of obtaining in the case, did not arrive until 3 o'clock, P. M. In consultation we agreed that it was probable one or more ribs were carious, and that an extensive abscess had formed about this carious bone, the contents of which gave tension and elasticity to the tumour externally, and the inward projection of which made such pressure on the right lobe of lungs, as to impede the func-

tion of respiration on the right side, and prevent the free circulation of blood about the bronchial tubes of the right lobe of the lungs, which only takes place during their inflated state. It was further agreed, that an incision should be made in the direction of the ribs, with the motive of removing such parts of them as might be found carious, and then be governed, in the subsequent part of the operation, by circumstances.

Every necessary preparation being made, at 4 o'clock the patient was placed supine on a suitable table, the right arm being extended by the side of the head, and that, and the left arm, supported by assistants—I commenced my incision at the sternum, and extended it freely through the super-incumbent integuments, immediately over the space between the fifth and sixth ribs, down to the lower end of the tumour. The fleshy digital origin of the serratus magnus from the sixth rib—the interlocking fibres of the origin of the obliquus externus abdominis—the costal origin of the pectoralis major, and the intercostal muscles, with their proper vessels, having by the resources of the system been removed prior to the operation, no blood vessel of particular importance was cut. A copious discharge followed, not of pus, for not a particle of purulent matter, was observed—but a kind of grume, and old red coagula, intermixed with dense coagula of lymph, resembling irregular fragments of membranes. This substance seemed to occupy the whole of the tumour, and surrounded entirely the carious bone. On the escape of that part of it which rested on the anterior portion of the ribs, the fifth and sixth ribs presented to view.

The sixth rib was found of a caseous consistence, and brownish colour, from its sternal articulation to the other end of the wound. The anterior half of this rib was easily removed by the fingers in small fragments, leaving the sternum apparently healthy, immediately behind the anterior end of the under lip of the wound, and the end of the vertebral fragment at the posterior end of the wound, also apparently healthy, and attached to the surrounding parts.

The inferior edge of the fifth rib, opposed to that part of the sixth, which I suppose to have been the seat of the first injury, was in the same condition for about two inches in extent. A section of this rib, on being cleared of the surrounding parts each way to the place where healthy adhesion existed, was removed by cutting forceps, these being found competent to the purpose, without so enlarging the incision as to make room for the saw. Here the intercostal artery of the fifth rib was cut and secured by ligature. Having detached those portions of the fifth and sixth ribs, and my opening through the bony structure of the side being free, I proceeded to remove the grumous and coagulated matter within the ribs. This being accomplished, I observed a difference in the quality of the disorganized substance remaining. It now began to exhibit a more homogeneous appearance—more broken in texture, and of a very dark greyish colour, occasionally tinged with a crimson hue. The depth into the thorax, to which I had now penetrated, being greater than the diameter of the ulcerated part of the parietes of the thorax from above downward, and from the ribs to the integuments—and this added to the different appearance of the disorganized matter excited my fears for the safety of the lungs. I immediately determined on making examination with my fingers for the lungs, by penetrating as deep into the substance beneath as I could without resistance. This I immediately proceeded to do, and to my utter astonishment and mortification, I was able to *penetrate the right cavity of the thorax, with my first and second fingers, in every direction* to the full depth of three and a half inches, without any resistance, more than the pulpy substance before described was calculated to give, except occasionally meeting with more or less disorganized fragments of *bronchial tubes*, all of which tended plainly to prove to me, that *the substance of the right lobe was extensively destroyed*. Thus disappointed in my views, and fearing to distress the mind of the patient, by making a candid statement of the case to my friend

Dr. Pugsley, I directed the finger of the latter into the wound, and he made a full and satisfactory examination to the same effect. I will here observe, that in this examination no respiratory motion was perceptible to the fingers. One minute's reflection dictated to me the only course which could possibly be pursued, and which I immediately adopted. It was, carefully to take away with my fingers, all the parts within my reach, which were removeable without violence, or the danger of producing hemorrhage in the event of my reaching near any sound vessel. The result of this was the removal of all the disorganized parenchyma of the lungs, within the reach of my fingers, (judged to be between one and two pounds in weight,) carefully cleansing it from between and around several of the branches of the bronchial tubes, which appeared to have retained their texture with more tenacity than their surrounding parts. Having done this, I resigned the completion of this part of the operation to nature, contributing all I could to her assistance in effecting the discharge of the residue, to what extent I know not. I then cleansed the wound carefully, which had the appearance represented in the annexed plate—introducing large pledgets of lint between the cut edges, (which were, themselves, considerably retracted,) for the purpose of keeping the opening as free as possible, for the exit of offensive matter. The dressing was finished, by covering the wound with a plaster, and applying a roller so tightly, as to prevent the motion of the ribs, causing respiration to be performed by the diaphragm chiefly. During the operation the patient became weak and faint, and freed from all pain in the part, except the smarting of the cut edges. He rested badly the first night, until he took an anodyne. The first day after the operation he was very weak—breathing laboriously. The room being crowded in the evening, and the air in it rendered impure, he became very much distressed—breathed with increased difficulty, and was thought dying. The room being cleared and ventilated, the patient revived and rested well that night, without

an anodyne. The second and third days after the operation, he rested well, with little fever, and slept during the night. The bark was ordered. On the fourth day, when I saw him, he was cheerful, and thought he should recover. The motion of the heart less laborious. He was quite composed—pulse in the hectic exacerbation ninety-six—natural in force and fullness, though with some febrile quickness, and convulsive action. He desired a little weak wine and water, which was given occasionally. By the scent of the wound in dressing he became sickened. The right leg and arm had been a little disposed to cramp since the operation, but was then free from that tendency. He was easily raised by napkins, to apply a many-tailed bandage around the thorax. Dressed with lint, introduced two inches within the ribs, to keep the orifice open—cut surfaces appeared natural and healthy—little suppuration.

Finding the wound had not been kept sufficiently open since the operation, and the distance of the patient from me being so great, as to render it impossible for me to see him often, or to attend to the dressing myself, I urged the necessity of keeping the wound freely open, by applying as large pledgets of lint as could be introduced. On the ninth day, I received information that he was considerably better—that the discharge from the wound, had, since my visit on the fourth, been much more free, and that there was perceptible respiratory motion in the right side. On the eleventh day I was informed by letter, that the symptoms were generally favourable. The wound looked well—mattered freely—slight fever every day—appetite pretty good—has an alvine evacuation daily without medicine.

The wound was closed by granulation in the middle, and open at each end. For a few days previously, it had been washed with *decoctum querci*, and on the day before, a hop poultice was, by the advice of Dr. Pugsley, applied for three hours, and an infusion of hops directed to be used, and continued as a wash. Healthy granulations had been mistaken for fungosities, and burnt alum applied to them.

On the thirteenth day his recovery was, in the minds of

himself, his attendants and friends who saw him, beyond doubt. Tents then penetrated about two inches, but the deepest parts of those cavities, which were kept open by them, appeared of a flesh colour, and were apparently filling with healthy granulations. He was very cheerful, and had from the wound, the whole of which looked healthy, a discharge of genuine cream-like pus. On the day before, he was, by the excessive anxiety of his friends, raised out of bed and placed erect on the floor. After standing a short space of time, he became vertiginous, and was again put to bed. This movement was performed without any pain whatever, either in the breast or wound.

In a letter to his friends, I again urged the importance of absolute rest. The wounded side of the thorax had increased motion in respiration. It is a fact, not less curious and astonishing, than his surviving such extensive lesions of his vital organs, that *no cough at any period of the case, either before or after the operation, more than in ordinary health occurred.* On the 2d of April, (the thirtieth day after the operation,) he walked about the house, and was desirous of walking over the farm. His father and other friends thought him now out of danger—believing his recovery confirmed.

On the 12th of April, (forty days after the operation,) I was requested to visit him on account of a little excrescence which had appeared a day or two before, at the under side of the anterior orifice, which orifice was still kept open by a small tent of twisted cotton, about one and a fourth inch long. He was very free from pain, uneasiness and cough. On examining the wound, I found a soft membranous protrusion of a livid colour, about an inch in length, and of a conical shape, filling an opening of seven or eight times in width, which it had made through the granulating edge of the wound at the side of the tent. On the removal of this substance an opening into the thorax was discovered, through which escaped a substance similar to that which was removed in the latter part of the first operation. Through this opening I was again able to introduce my

finger to about the depth of two and a half inches, directly inward, downward, and backward, but not upward. I again removed about half a pound of disorganized substance of the lungs, which had not been able to find its way out before the wound healed. The patient was sensible of my touching in every direction, which was no way more than two and a half inches. The wound was again dressed with as large a tent as the opening would receive, and the old tent above directed, to be left out thereafter. The patient remains easy, and has continued to mend to the present time. Respiratory motion is as free in the right as the left side, as far as the fifth rib, below which, there is not the least appearance of it.

Augusta, April 24, 1821.

Continuation of the case.

On the 6th of May, I again visited the patient. His general symptoms were still better. He had at that time so far recovered and improved in health, as to possess all the *fullness of habit* of his ordinary state. His strength had so far returned as to enable him to exercise on foot freely about the yard, and he felt able and desirous of walking to some place in the neighbourhood, half a mile distant, but was not allowed to exceed the limits of the yard. In short, he was able to sit and walk about the house and yard, twelve hours out of twenty-four, with much facility. The wound in external appearance, remained somewhat as it was at my last visit—presenting in some places livid projections, and in others growths, not altogether unlike fungus. These livid and fungous-like parts being found insensible, and projecting, I suspected some unhealthy substance occupied the cavity beneath. On removing these with scissors and caustic applications, I found a free opening into the thorax and again removed the contents of the cavity with my fingers. These seemed to consist of coagulated blood entirely—some parts of which were not unlike the buff of blood drawn

from patients labouring under inflammatory diseases. I dressed the wound as before, and left the patient.

Notwithstanding the constitutional amendment which Mr. Allen has experienced, in addition to his having survived the loss of considerable portions of two ribs, and not less than *two thirds* of the right lobe of his lungs, my prognostication, (which, in the first of the case, was pointedly unfavourable as to its final issue,) is not altered. It is true, that I wonder at the powers of nature in continuing the vital motions more than a few hours after the operation, and still more so, at the progressive and uniform amendment of the general system: for in the first instance, I did not believe it consistent with the powers of nature, for him to survive the immediate effects of the operation. But my prognostication is now founded on other reasons. There is a large cavity in the right side of the thorax, corresponding in extent with two thirds of the right lobe of the lungs. This cavity cannot remain an inclosed space, and have its parietes cicatrize—such an idea appears to me, not only unprecedented, but incompatible with, and counter to the grand design in the construction of the human fabric. And if this be not the fact, it is at least contrary to surgical pathology. Neither can I with reason expect to find the surface of this cavity, together with the edges of the wound, cicatrize, open, and become as a common surface of the body, notwithstanding the lower extremity of the remaining portion of the lungs appears to have adhered or healed in such a manner, that its respiratory function is not in the least affected by the free admission of air into the great cavity below—nor can I believe, that the resources of the system are such as to afford any kind of healthy growth, by which this cavity may be filled and remain well. Such a growth must necessarily arise out of the action of vessels, which have been constructed for the purpose of regularly furnishing nutriment to the same quantity of parts intended to be reproduced, and their consequent deposition of new substances.

The vessels of the parietes of the thorax, the mediastinum, and diaphragm, have not been designed for this purpose,

and are, therefore, not competent to the task. These are all the parts surrounding, except at the upper boundary of the cavity, where the remaining fragment of the lungs terminates. The structure of the lungs, as well as their function, being entirely unlike that of any other part of the system, I feel by this peculiarity, justified in the conclusion, that their vessels, although they *may heal when injured*, have not the power of *reproducing a lost part*. Hence, it is apparent why the cavity cannot be filled with healthy growth, either of lungs, or ordinary granulations.

The only other possible ground of recovery, (if indeed there be one,) is the approximation of the sides of the cavity—such as nature would effect in any other part, except the head. This cannot be done, because the arched form of the remaining ribs tends necessarily to keep the cavity from closing by a collapse of its sides. The only curative indication of which I can conceive in the case, therefore, is an unprecedented and desperate resort to surgery, which I should be unwilling to make, and which, most probably, the system would be unable to survive. It is the entire removal of the ribs, from the fifth to the diaphragm, by carefully dissecting them from the muscles and common integuments, leaving these to fall in the cavity, and be applied to its opposite wall for adhesion.

Augusta, August 10, 1821.

P. S. The above statement, which was written previous to the 3d of April, being referred to Dr. Pugsley for his inspection, was returned by him, with the following certificate:

“The statement of the case of Elmon Allen, as drawn up by Dr. Antony, having been submitted to my inspection, I have reviewed it with strict attention, and have the satisfaction of being able to certify, that, in every respect, it is strictly correct and true.

JNO. PUGSLEY.

Jefferson County, Georgia, April 4, 1821.

Sequel.

Called in only as consulting physician, and the patient being at a considerable distance from me, I never saw him again. Not long after my last visit to him, I was told that he went out some two or three miles to church—and soon after this, I was informed that he had taken the measles, from which it was believed he had recovered, though his general health was left impaired, and in which state it continued, gradually becoming worse, until the 11th of July, on which day he died.

MILTON ANTONY.

September, 1822.

We learn from Dr. Antony, that some account of the above case, has already appeared in the New England Medical Journal. But it is an imperfect sketch, with which he is not satisfied. The present report of the case is ample, and we have cheerfully complied with his request, to give it an insertion.

EDITOR.

ART. XIII. *Case of Chronic Diarrhœa, successfully treated by the use of Secale Cornutum.* Communicated by ABRAHAM STOUT, M. D. of Bethlehem, Pennsylvania.

S. L. a single woman, aged twenty-eight years, was from her childhood very weakly, and subject to nervous affections. About eight years ago, she was first afflicted with a diarrhœa, which continued, without much alteration, for upwards of six years. She became much emaciated, her legs were often edematose, and occasionally a tumefaction of the abdomen, attended with a distinct fluctuation, was observed. Her mind became so much disordered, that it was often with difficulty her mother could get her to converse, and the sight of a stranger excited fear to an extreme degree. She had no appearance of the menses, before she was in her twenty-fourth year. The discharge was

then natural, but it came on at irregular periods, and did not appear to have the slightest effect on the diarrhœa or mental disorder. In this deplorable condition she was, in the summer of 1821, when I first saw her. Anterior to this time, she had been attended by several country practitioners, all of whom pronounced her disease incurable. I put her on a course of tonics and astringents. By pursuing this treatment for a considerable length of time, she gained more strength, though the various vegetable and mineral astringents, which I at different times employed, together with opium, had little or no effect in restraining the diarrhœa. They checked the disease sometimes for a day or two, but, notwithstanding the continuation of the treatment, the complaint would return with an apparent increased violence. The flores martialis were given at one time, with a view of checking the diarrhœa, on the authority of Dr. George Green. The effect which this article produced for the first eight or ten days was so striking, that little doubt remained in my mind, of its effecting a cure: but after the patient became habituated to the medicine, the disease resumed its usual course, though the dose was increased to as much as the stomach would bear. In the early part of last summer, the patient had a suppression of the menses, which occasioned hysteria, head-ache and vertigo. After using several emmenagogues without success, I was induced to give the secale cornutum a trial, and commenced with the dose of six grains, three times a day. The medicine produced an uneasiness in the uterine region, without restoring the menstrual discharge: on the diarrhœa, however, it had a very salutary effect. By continuing this article a few days, her bowels became so much constipated, that it was necessary to omit it, and resort to laxatives. I directed her to take one or more of the powders of the secale cornutum, only when the complaint made its appearance. She followed my advice, and it had the effect, not only of checking, but of curing this very obstinate case of chronic diarrhœa. The menstrual discharge was restored, by the use of the tincture of cantharides. Her health afterwards improved rapidly, her mind became cheerful and happy,

and during the course of last winter, she paid many visits to her friends and relatives.

As far as my observations have extended, with respect to the *modus operandi* of the *secale cornutum*, in curing the above mentioned disease, I have reason to believe, that it did not produce this effect by an astringent quality which this article may possess, nor from a direct action on the bowels. It probably made an impression on the stomach, which by sympathy, excited a new action in the uterus, that counteracted the morbid one in the intestines.

ART. XIV. *Cases illustrative of the use of the Muriate of Lime in Palsy from diseased Vertebræ.* Communicated by ALEXANDER SOMERVAIL, M. D. of Essex, Virginia.

ABOUT seventeen years ago, I had reason to believe, a continued use of the muriate of lime contributed to the healing of carious bones—and, from several trials since, I am more confirmed in that opinion.

In 1807, a case of palsy of the lower extremities, from curvature of the spine, came in my way. The curvature was plain enough, and painful, though with little lameness. A free issue was made on each side of the diseased vertebræ, and the muriate of lime taken. The issues never discharged well, and were allowed to heal in three weeks, yet much relief was obtained: the muriate was continued three weeks longer, by which time all complaint was removed, and the patient continues well at this time.

In 1813 another case occurred, in a negro boy, about thirteen years of age—the curvature remarkable, and the loss of power and sensibility complete. A large caustic was effectually applied to each side of the spine, and the muriate given. The sores produced much matter at the time, and the muriate was said to be regularly taken. He grew worse and worse, till he died, in about two months. In such a case,

the spine ought to have been stretched by a proper apparatus, and thereby the pressure on the spinal marrow removed, and then perhaps the bones might have been healed.

A young man, seventeen years of age, by trade a house-joiner, had been at hard work, with much heavy lifting, in July and August, 1822, and in an unhealthy situation, which produced an intermitting fever. When that was cured, and he went to work again, he began to complain of pain in his knees, so as not to be able to walk: on an attentive examination, the loss of muscular power, as well as numbness in both legs and feet, was perceived. No injury could be detected in the spine. This was on the 26th of September, when he began to take the muriate, and continued it faithfully. He became very helpless, and could neither stand nor walk without crutches, and had great difficulty in turning in bed, growing worse for several weeks, with the numbness increasing. After several examinations of the spine, the second dorsal vertebra betrayed soreness to the touch, though no curvature was discernible. A solution of opium and camphor in spirit was applied to the painful vertebra every night, by wetting cotton wool with it, and binding it on—which produced redness, and some small blisters, without any benefit. This was used for several days, and then a large blister was applied, which occasioned much distress, and about a week after it was healed, when another blister was proposed, he perceived he could stand without the crutches, and on trial walked across the room without support: this was on the tenth of November. From this time he recovered daily, and being tired of the muriate, which now operated on the bowels, he left it off on the seventeenth. Nothing more was done. By the twenty-sixth he could walk pretty well with a stick, and about the middle of January returned to his trade, and is now well. This case was in my own house, and may be depended on. Was the cure from the blister, or the muriate, or neither?

ART. XV. *Case of extensive Ulceration of the Uterus, Rectum, and Vagina.* By Dr. WILLIAM F. IRWIN. Read before the Pittsburgh Medical Society, Nov. 5th, 1822, and by them ordered for publication.

HANNAH WARD, aged 29 years, was admitted into the poor house of this city, 1st April, 1822, in order to receive such medical attention, &c. for leucorrhœa, and dysentaria alba, as her case required.

This woman was the wife of an Irish soldier, who was attached to that portion of the British army, under the command of sir John Moore—and served with her husband, for five years, through the severe trials and hardships that peculiarly distinguished the warfare carried on in the Spanish peninsula.

At the end of the war in that quarter of the world, her husband was ordered to Upper Canada, and from thence to Detroit, where he died. After his death, she left Detroit for Pittsburgh, and arrived here sometime in 1820. During the period of her camp life, she had borne five children, and had generally enjoyed good health. Her temper and disposition were amiable, and of fortitude, she possessed more than any one with afflictions similar to those she sustained, I have ever known. But she largely participated in her companion's attachment to ardent spirits: this attachment, together with the frequent opportunities for indulgence, afforded by the vagabond life of a camp follower, rendered her not unworthy the title of an *incorrigible dram drinker*.

About ten days previous to her admission into the poor house, I was requested to visit her. On my arrival, she informed me, that she had been troubled with the whites for a long time; that in the latter part of 1820, and on various times in 1821, she had been attacked with profuse hemorrhages from the uterus, and that her present weakness and emaciation, were induced by a more than usually profuse hemorrhage, which had come on a few days previous, while scrubbing a floor. This discharge, she inform-

ed me, was accompanied by severe griping pains in the bowels, and with frequent bilious-looking stools. Her tongue was dry and covered with a brown crust. The tunica conjunctiva were suffused with bile, and her complexion generally, was extremely sallow, and of an exsanguined appearance. Menstruation had been irregularly performed for a long time, and had for many months disappeared altogether. As the dwelling in which she then was, afforded none of the comforts necessary for one in her situation, I made the case known to the proper officers, and she was forthwith removed to the poor house.

The symptoms of which she complained at the time of her admission, and for a considerable period afterwards, were constant and severe griping pains in the bowels, flatulency, burning pain in the stomach, frequent inclination to vomit, disagreeable taste in the mouth, and dry and husky skin. Her thirst was considerable, and temperature of the skin preternaturally cold. The evacuations from her bowels were occasionally natural; more frequently so, when procured by purgatives—though oftener mixed with blood and lumps of mucus. These lumps were mostly of the size of a hazel nut, and of colour and consistence similar to cold lard. Oftentimes their colour and consistency were like whey, and sometimes they took on the appearance of thick jelly. These discharges occurred generally seven or eight times a day, and frequently as often at night. The pulse, from the first time I had seen her, was exceedingly small and feeble, and indeed for the four last months of her life, required more than ordinary sensibility in the fingers to perceive its motion.

Emetics of ipecacuanha, followed by small doses of calomel, ipecacuanha and opium, removed the sallowness of the skin, and left the conjunctiva of a pearly white.

These remedies having been used for a time, the stools assumed a more natural appearance, and the skin was put into a better condition. Bark and elixir vitriol, with an allowance of wine, were ordered, together with astringent injections for the leucorrhœa. It is unnecessary to detail the various

remedies prescribed in this case: none were persevered in, nor indeed could they be retained, owing to great irritability of the stomach, for a sufficient length of time to test their efficacy.

As she slept little, and was at all times restless, opium and its preparations were often ordered: but this medicine in every form particularly disagreed with her stomach, and consequently was laid aside. The injections had also to be discontinued—as even of the mildest form, they produced more pain than she was willing to suffer. In May last, I succeeded in affecting her mouth slightly by mercury, and the only effects discovered, was a partial relief from pain, and a marked increase of strength, during the continuance of the mercurial fever. No change was made by this medicine in the discharge per anum et vaginam. While the mouth continued affected by mercury, which lasted perhaps six or eight days, she was able with the assistance of the matron, to walk through the house. In June, she mentioned to the matron, that she had felt something give way within her belly, while straining severely at stool. Not until this circumstance occurred, had the discharges per vaginam been offensive to the smell—but from that event until her decease, they were extremely so, and it was satisfactorily ascertained as a cause of it, that the contents of the rectum were evacuated by the vagina.

From the foregoing circumstance until her death, which took place on the 16th Oct. 1822, the discharges were composed of a mixture of fæces, purulent matter, and blood—the blood most frequently in coagula, and never entirely fluid. Spasms of the face, legs and hands, were frequent, during the last two months of her illness. About six weeks before death, she complained of sore throat, difficult deglutition, and pain in her left breast. The faculties of her mind were preserved unimpaired, during the whole of her protracted confinement. She had often mentioned to the matron her desire to be opened after death, and which she wished to be assured I would perform. This promise was very readily given; and accordingly, on information being sent

that she had expired, I took with me my friends, Doctors Gaygan, Church and Brunot, Jr. and we immediately proceeded to the examination of the body.

Dissection.

Thorax.—The sternum being lifted up, we discovered the right lung natural—left, adherent throughout its whole surface. Heart, fatty and pale.

Abdomen.—The abdominal cavity presented the omentum, thin and shrivelled. Liver sound. Gall bladder distended. Intestines healthy.

Pelvis.—The parietes of the uterus unusually thick: right fallopian tube and ovarium adhering to the posterior part of the uterus, and anterior part of the rectum—the neck of the uterus extensively ulcerated, and the ulcerations communicating with the rectum through the vagina. The cavity of the uterus was studded with small cauliflower excrescences. On pressing the fundus uteri, between a gill and half a pint of ichorous matter flowed through the os tincæ, into the vagina and rectum, which formed one common external opening. The os tincæ was dilated to the size of a crown piece, and covered with tubercles and ulcers. The left fallopian tube and ovarium were natural.

The stomach being removed from the body, was cut open, and found contracted, the villous coat inflamed, and very much injected with blood.

A case somewhat analogous to the foregoing is described by Dr. J. Clarke of London, and may be found in the 4th volume of the Eclectic Repertory. Yet, in this case a striking difference occurs in the course and extent of the ulceration. An opening was formed in the upper part of the womb, through which pus escaped into the cavity of the abdomen. The os uteri was rugged and hard, but is not mentioned as having been in an ulcerated condition. Neither had this patient ever suffered much pain or uneasiness from the disease, until the time when, similar to my patient, she complained of something having given way within her abdomen. A similarity again occurs, in the request to be

opened. His patient was sixty-five years of age, and was considered by him as a case irremediable from the first. The plan of treatment pursued was in many respects similar to that I adopted. But his patient lived only nine or ten weeks after the first symptoms of disease were discovered: mine evidenced greater tenacity of life, by enduring the complicated sufferings of her situation for about seven months, and during almost the whole of that period with the circulation so languid and feeble as scarcely to be discovered.

ART. XVI. *A Case of Puerperal Convulsions successfully treated with the Ergot.* Communicated in a Letter to WILLIAM DARRACH, M.D. by W. D. BRINCKLE, M.D.

MRS. R. aged thirty-five, was taken in labour with her first child about sun-down, on the 18th of May, 1821. Her pains were good, and a very flattering time was anticipated—when suddenly, and without any premonition, she was attacked with convulsions. The midwife who officiated sent immediately for me, and on my arrival, which was at ten o'clock, P. M. gave me the preceding information. Since her recovery, however, Mrs. R. has told me that previously to the occurrence of the convulsions, she had a very severe pain in the fore part of her head. At the commencement of each fit, the arms and wrists became cold, although the hands continued warm: the appearance of the convulsed countenance was horrific—with a pulse hardly perceptible and frequent. When the froth began to issue from her mouth, and the stertorous breathing, which was truly alarming, had come on, the arms and wrists resumed their natural temperature, a moisture made its appearance on the surface, the pulse rose, and beat violently. These paroxysms succeeded one another with very considerable regularity. The lancet, in this case, was freely employed. I drew blood co-

piously at three different times, and I would, unquestionably, have continued the depletion, had the pulse permitted it. In addition to venesection, I had recourse to camphor, aperient injections, sinapisms, and blisters. I am sorry, however, to say, that this course produced very little effect either as to the frequency of the paroxysms, or the efficiency of the pains. Her pulse was now evidently too much reduced to bear any further depletion. Conceiving that the ergot might be employed to advantage, although I had not heard of its having been used in a similar case, I gave at ten o'clock, next morning, ten grains of it, which was repeated in half an hour. In twenty minutes after the first dose was given, both the force and efficiency of the uterine action were increased, and at half past eleven the child was born. She had no convulsions after the ergot was administered. Although the advantage derived from the *secale cornutum*, in this case, was so decided, I do not know that I should resort to it in puerperal convulsions, until the lancet had been actively employed. If there exist much action, I have always found the ergot to operate more promptly and powerfully when preceded by venesection. Nor do I think it would be altogether proper to prescribe it, until labour is pretty considerably advanced, and the *os uteri* dilated. Where convulsions supervene, in a case of commencing parturition, we should endeavour to suspend the action of the uterus, by boldly urging the lancet as far as may be expedient, and then resorting to opium and camphor. This plan succeeded in a case which occurred four days after that which has just now been related. The pains were completely arrested, and, with them, the convulsions. In a week afterwards labour recommenced, and my patient was delivered without the recurrence of the convulsions, or the accession of any untoward circumstance.

ART. XVII. *Case, in proof of the efficacy of the Actual Caustery in deep Sinuses.* Communicated in a letter to the Editor, by NATHAN R. SMITH, M. D. of Burlington, Vermont.

HAVING noticed in your valuable and interesting Journal, a suggestion of the utility of the actual caustery, in certain local diseases, I am induced to bear testimony to the result of its application in a case somewhat interesting. I deem it the more necessary to communicate it, as I am apprehensive that most practitioners are too timid and irresolute in the employment of a remedy, which, though it carries with it the appearance of cruelty and torture—the result of the following case, proves to be not less effectual than severe.

In the winter of 1821, Levi Castle, a young labouring man, while hewing a stick of timber, gave himself, by the glancing of his axe, a severe cut upon the inside of the knee joint. So far as I could learn, the injury was in no way complicated, there being no profuse hemorrhage, and the cut not being so deep as materially to injure the apparatus of the joint. The nearest medical aid being procured, the practitioner proceeded to guard against any unfavourable result, or as we might say of his practice, to mend the cut. For this purpose the needle and ligature were made ready, and with the fearlessness of ignorance, he struck for the bottom of the wound—piercing not only the ligaments of the joint but probably its cavity. The lips of the wound were then drawn together with a faithfulness, which in some other occupations would have done him honour. It is unnecessary for me to detail the result of such practice. A surgeon was soon after employed, who found the limb shockingly diseased. For some time the life of the young man was in great jeopardy, and when the inflammation finally abated, after extensive suppuration and weeks of anguish, the joint was left ankylosed, and there remained a sinus, deep-seated beneath the exterior muscles, having a fistulous opening near the original wound. For the cure of

this remnant of the disease, his physicians employed the usual means in vain. It continued nearly stationary, alternately discharging healthy and ill conditioned pus.

It was at this time that the young man came under my care. He had become exceedingly impatient of confinement, and almost in despair of being restored to health. From the nature of the disease, (for I was confident that there was no carious bone,) I apprehended but little difficulty in accomplishing a cure. But when I had employed injections of various kinds, the bandage and compress, at the same time using general remedies, and all in vain, I became somewhat anxious for the result. It was evident that there had become established, an obstinate habit of diseased action, for the removal of which it was necessary to make some powerful impression upon the part. With this view, I made an incision over the outer margin of the extensor muscles, into the abscess which lay beneath them, hoping that the inflammation, which should ensue, might subvert the disease. For a few days I had every reason to expect a favourable result. The discharge nearly ceased, and adhesion appeared to have taken place, but when the incision had nearly healed, the ulcer suddenly resumed its unhealthy aspect, the discharge became sanious, and the granulations which had been forming disappeared.

The poor man was now just where I had found him, except that he had lost much confidence in his surgeons, and was in utter despair of being relieved of his loathsome disease. The circumstances under which he became my patient were such, as made me extremely anxious to restore him to health.

I happened about that time to meet with a case in the London Medico-Chirurgical Journal, in which the actual cautery had been employed. I immediately suggested the use of it to my patient, endeavouring to acquaint him with the manner in which it would probably operate, and related to him the case which I had read. He finally complied with my wishes, at the same time assuring me, that should this fail, it should be the last attempt. I procured an iron

cylinder of three quarters of an inch in diameter, flattened at the end. This was heated to whiteness, and applied in two places over the sinus, and held upon the part for some seconds. It destroyed the skin, and excited an inflammatory blush upon the surface of the limb. From that day the aspect of the disease was changed, and in a week from that time, I had the satisfaction of dismissing the young man perfectly well, adhesion having taken place throughout the parietes of the sinus.

I think I have never witnessed, in surgical practice, the application of a remedy, the result of which was more unequivocal or speedy. The event of the case has led me to inquire, whether we might not use the cautery, not only in diseases of a local nature, but also in general diseases, connected with or dependant upon local affections, where there is needed a remedy which will act with promptitude and energy. What, for instance, would be the effect of its application, along the spine, in tetanus?



ART. XVIII. *Case of Encysted Meliceris Tumour, cured by puncture and injection of wine.* By ANDREW PARK, M. D. of Eatonton, Georgia.

THOUGH I am conscious that the plan of treatment adopted in the following case, is not altogether original—having, indeed, been suggested by the celebrated French surgeon, baron Boyer—and on his authority put in execution by M. Chopart, and some other practitioners of surgery, yet I am inclined to believe, that very few, if any, of the surgeons of this country, have ever resorted to this method of curing such tumours. This is my only apology, for presenting the public with the following case.

The subject of the tumour, was a very respectable young lady, Elizabeth Clark, of this state, aged about sixteen years. It was situated on the left side of her neck, extend-

ing anteriorly as far as the trachea, producing considerable difficulty in deglutition and respiration—involving the carotid artery, internal jugular vein, and other important parts of the neck—upwards as far as the chin, angle of the jaw and ear—and posteriorly, considerably behind the ear, and on the side and back of the neck, and downwards towards the sternum and clavicle. It was quite apparent, that it had no connexion with the thyroid gland. The tumour had been examined by several respectable practitioners of the neighbourhood, who all concurred in the opinion, that extirpation was the only course which could be adopted, and that even this was, perhaps, impracticable. Thus, the case was abandoned, as nearly irremediable.

In this state of despondency she lived, with a constant increase of the disease, for five or six years.

In the fall of 1820, I was in her company, and requested the privilege of examining the tumour, which was granted. I found it soft, elastic, and fluctuating, having all the distinguishing marks of a common meliceris tumour. It immediately occurred to me, that by puncturing the sac, and injecting its cavity with Port wine, it might be obliterated, as in dropsy of the tunica vaginalis testis. This was proposed to the young lady, who being willing to undergo any thing that held out a prospect of relief, consented to have any operation performed, which was deemed safe and effectual.

On the 12th of November, in company with my friend and co-partner in practice, Dr. Hoxey, and Dr. I. Branham, I proceeded to the operation.

With a common thumb lancet, a puncture was made at the most pendant point of the tumour, a little larger than a wide orifice for bleeding at the arm, and with a large female catheter, and by the assistance of pressure, every vestige of its contents was evacuated. The colour of the matter was similar to honey, though of less consistence. The tumour being emptied, the superabundant skin accommodated itself to the neck so completely, as to destroy altogether the deformity. Next, by a common enema syringe,

the cavity was distended to its former dimensions, with warm Port wine undiluted, which was suffered to remain about twenty minutes, when some considerable pain being excited, it was drawn off by the catheter, and the skin sunk down as before: a tent of lint was introduced into the orifice, and for the purpose of compressing the sac and surrounding parts, a folded piece of linen and bandage were applied, which completed the operation. The next morning there was considerable tumefaction of the parts, with some pain and difficulty in swallowing. But the swelling was soft and elastic, not having any of the hardness and redness of erysipelatous inflammation—the bandage was now taken off, the tent withdrawn, and the bandage re-applied, taking care not to make much pressure with it. Low diet of fluids, and rest, were enjoined: the night was spent with some restlessness. On the third day, the swelling continued nearly the same. On the fourth day, I found the pain in swallowing increased, the parts quite tender and with some fever, in consequence of which, I directed mild aperient medicines, and a strict observance of the antiphlogistic regimen. On the succeeding day, the pain and swelling began to subside, and from this time, the parts gradually diminished, until they assumed their proper shape and appearance. The sac was completely obliterated, and never was a case of this nature, even of hydrocele, more effectually cured, so much so, that it would be impossible for any one to say, which side of the neck had been diseased, except for a slight scar. My patient continues to do well, has greatly improved in health, and is raised from the most miserable state of grief and despair, to vivacity and comfort.

ART. XIX. *Case of Tetanus, cured by Tobacco Enemata.*

Communicated for this Journal, in a Letter to Professor COXE, by JAMES NORCOM, M. D. of Edenton, North Carolina.

IT is not within my recollection that any report has been made concerning the use of tobacco in tetanus—and, as a case has lately fallen under my observation, in which the remedy has been tried, I think successfully, I do not know that I could offer a more acceptable present, or perform a more important duty to the profession, than to detail it in all its most essential circumstances. Before I enter upon the statement, however, I deem it but justice to myself to observe, that I had never known or heard of the application of tobacco in the treatment of tetanus—and that I was led to the use of it by a deliberate consideration of its virtues, and the frequent inefficacy of the remedies usually prescribed in that very formidable and fatal disease. Since the termination of the case about to be described, I have understood that a respectable practitioner of this state used the medicine, some years ago—but with what result I am not able to say, as I cannot learn that he made any communication on the subject, or that he has had any opportunity of proving its utility by subsequent experiments. Another instance, mentioned lately by a gentleman of my acquaintance, tends, in a considerable degree, to enhance the credit of this new remedy: a sea captain, while on a voyage from the West Indies to some port in the United States, being seized with tetanus in consequence of a punctured wound, had recourse to the smoking of tobacco for relief. The effect was an immediate alleviation of pain and spasm—and by continuing the practice to such an extent as to produce frequent nausea and vomiting, he was at length entirely cured. This case was also communicated to me since the recovery of my patient, whose disease I now proceed to describe.

On the evening of the fifth of December last, I was requested to visit Major, a shoemaker, belonging to a citizen

of this town. Upon inquiry, I found that, about eight days before, he had punctured his forefinger on the left hand, with an awl. The wound, at the time it was inflicted, gave but little pain, and was soon disregarded and forgotten. The following were the symptoms under which he laboured at the time of my visit: his jaws were completely closed—his head fixed, his neck stiff and immoveable: he had spasms in his legs and arms—some pain and uneasiness in the chest, with painful and difficult deglutition, and a hurried, anxious respiration. His pulse beat about a hundred strokes in a minute, was full and active, but neither hard nor tense. I immediately made an incision into the punctured part,* applied red precipitate to the wound, and directed soft lint and an emollient cataplasm to be laid over the precipitate. In the next place, I gave him a drachm of laudanum in a draught, ordered mercurial ointment to be rubbed freely on the back of his neck, down the spine, and under the jaws—and directed, if the rigidity of the muscles did not yield in a few hours, that two drachms of tobacco should be infused in a pint of boiling water for half an hour, and the infusion given per anum: he was directed also to use toddy as his common drink. The spasm and rigidity of parts increasing, the infusion was administered at eight o'clock. In about half an hour after the exhibition of the tobacco, he became distressingly sick at the stomach, the rigidity of the muscles grew sensibly less, the head being capable of moving a little forward on the application of gentle force: the spasms of the arms and legs abated, but the jaws still continued immoveably closed, the temporal masseter and adjacent muscles being rigidly contracted. In this situation, he remained till three or four o'clock in the morning of the next day, when, from the evident and alarming increase of the disease, it became necessary to re-

*A practice in which I only acted in conformity to a common custom—for, I confess, I expected no benefit from this local treatment, so long after the infliction of the injury. Immediately after the puncture was made, a division of the nerve, and the application of some escharotic or stimulating substance, would have been reasonable, and might have prevented all its distressing consequences.

peat the injection. In half an hour, or a little more, he grew extremely sick, and vomited, and, in the course of an hour, passed the injection without any observable mixture of fæces. The symptoms of his disease were again greatly mitigated—but as he had yet a steady contraction of the maxillary and temporal muscles, a difficult deglutition, and frequent returns of spasm in the arms, back, and legs, I gave him a drachm more of laudanum, desired that his toddy and the mercurial ointment might be continued, and requested his master, if the spasms and pain were not relieved, to have recourse to the injection between twelve and two o'clock in the afternoon. The injection was found necessary at the time named, and my colleague, Dr. Sawyer, who called to see my patient, while I was on duty in the country, added to my prescriptions the bark and wine, and directed a drachm and a half of laudanum. Under the impression of this anodyne, the bark, wine, and brandy, the complaint continued to increase, and about nine o'clock in the evening, I ordered the tobacco to be repeated. The usual good effect was at once perceived: his pain abated, the spasms of the neck and extremities subsided, and his jaws became so much relaxed, that I could, without much difficulty, insert my little finger between his teeth. At my last visit in the evening I ordered him a drachm and a half of laudanum about midnight, provided his jaws closed again, and his pain and spasms returned: I ordered, also, a free and persevering administration of the bark and wine, and the application of mercurial ointment on his neck, throat, and thighs, every four hours. On the morning of the 7th, I learned that the complaint had increased during the night, that the laudanum, bark, and brandy, had been given without effect, and that at four o'clock it had been found necessary to fly to the tobacco again—that soon after its exhibition vomiting occurred, and a small fæcal discharge took place from the bowels, succeeded by a considerable opening of the jaws, and an entire cessation of spasm in the neck and arms. Perceiving now the superior and sovereign efficacy of the tobacco, I directed that the bark and wine

should be laid aside, that the quantity of the mercurial ointment should be diminished, and that the patient should drink broth or panada, or any other liquid aliment that was agreeable to him, allowing the toddy still to be moderately continued. In the course of the day, the pain and spasms returned, but in a slighter degree, and in the afternoon the tobacco was used again. In an hour from the time of its exhibition, every thing looked well: the jaws became so much relaxed, that he could separate them himself, as much as half an inch, the stiffness of the neck and spine was greatly diminished, the spasms of the arms entirely gone. In the evening about nine o'clock, I considered him so much better, that I ordered him only an anodyne with his toddy, and such nourishment as he could be prevailed on willingly to take. Before day, however, the symptoms of his disease returned in a considerable degree, and were, again, effectually removed by the narcotic infusion. On the evening of the eighth, I found him decidedly improving, capable of opening his jaws three quarters of an inch, his neck flexible, and his spasms absent. From this time, by the occasional use of anodynes, the moderate use of the mercurial ointment, and light nutritive food, he gradually mended, till he recovered. For three or four days afterwards, it was found necessary to administer castor oil frequently to open his bowels, and to relieve a dysury, occasioned, probably, by the accumulation of indurated fæces in the rectum, and lower part of the colon. Towards the close of the disease, a fætor of the breath occurred, and a gentle salivation—but neither of these symptoms appeared before the ninth day.

I am aware that some doubt and uncertainty may rest on the foregoing case, from the number and variety of the remedies made use of in the treatment of it. Yet, I think, it must be evident from the progress of the disease, the apparent operation of medicinal agents, the order and manner of their exhibition, that the nicotiana exerted a decided superiority over every other means that was tried for the purpose of inducing relaxation and removing spasm. How far it would have succeeded alone, or without the aid of opium

and other stimulants, it would be difficult to determine. The alarming aspect of the case, seemed to call most vehemently for all the remedies which skill and experience could suggest—and I therefore did not conceive it safe or prudent, to trust to the operation of any single remedial agent, in a disease so awful in its character, and so frequently fatal. Allowing that the constitutional impression of mercury, might have been sufficient to arrest the career of spasm or cure disease, I think it may reasonably be doubted, whether the symptoms could have been controlled, until the mere action supervened, had not the tobacco been resorted to. Indeed the fate of the patient appears to have been decided, before any evidence of mercurial excitement could be observed, either in the pulse or in any part of the lymphatic system. That the action of opium tended, at least to assist the nicotiana in alleviating pain, and inducing relaxation, it would be absurd to deny. They doubtless co-operated in producing these great and desirable objects; yet, I feel fully persuaded, that, from the feeble impression the laudanum made on the patient, without the influence of the tobacco, the disease would have advanced to a fatal termination. I am far from believing that the tobacco will be found a remedy in every form or attack of tetanus. In cases occurring in weak and delicate constitutions, and attended with low arterial excitement, it might be dangerous in the hands of incautious practitioners; but where the patient is strong and vigorous, the pulse full, tense, and active, especially in those cases in which bleeding* would seem to

* May it not often happen, that this remedy is improperly used in tetanus, from the difficulty of distinguishing between the true state of morbid excitement in the blood-vessels, and that which is the effect of violent and long continued muscular action upon the arteries? I confess, I am somewhat incredulous, as to the propriety of venesection in this disease: I have seen it used in two cases only, in which it appeared to be indicated; in both of which, I am confident, it was hurtful, and precipitated the death of the patients. Respecting the cases that have been reported, in which blood-letting proved so signally beneficial, I would sooner believe that they were sthenic inflammatory fevers, with inflammation in the muscles, commencing near the seat of injury and irritation, and producing pain, stiffness, and

be indicated, I am of opinion, it will be found an invaluable remedy. The causes which give rise to tetanus, are so numerous and various, and the character which it assumes, so different in different cases and situations, that the above observations will hardly apply to the complaint in all cases. Yet, I cannot help believing, that by adding the nicotiana to the catalogue of our remedies, in the management of it, our power over the disease will be considerably augmented, and its terrors in no small degree diminished.

P. S. If the above case should be deemed by you of sufficient importance, I will thank you to hand it to Dr. Chapman, and request that he will give it to the world, with such comments and observations, as he may think calculated to make it useful to the profession.

NOTE.—The above case, which we derive from one of the most valued of our friends, will be read with interest. The practice, however, pursued in it, is not altogether original. We remember well, that in the lectures of the late Professor Barton, some cases were cited, of the utility of tobacco enemata in tetanus. He considered the practice, on what authority we know not, as originating in New England. The only trace of it, which we can discover, is to be met with in Professor Bigelow's work on botany. It is there stated, that Dr. Holms of Massachusetts, cured a case of the disease in this way, after the ordinary treatment had failed. But the remedy seems to have been long, and pretty generally known. As early as 1799, Dr. May, a graduate of this university, mentions a case in his thesis, cured by the tobacco infusion—and another instance is published by Dr. Duncan, of Grenada, in the *Edinburgh Journal*, of more recent date.

Guided by analogy, for the utility of the tobacco prac-

rigidity in them, than that they were genuine cases of tetanus, arising from nervous lesion, and disposing to that peculiar form of spasm, which truly characterizes tetanic affections. In this view of the subject, however, I may be wrong—and I leave it to my more industrious and intelligent brethren to settle the point.

tice, under such circumstances, was familiar to us—we some years ago very promptly relieved a case of tetanus, by an injection of emetic tartar. The case is recorded in our work on *Therapeutics*, &c. We indeed, early entertained the impression, that the relaxing and evacuating remedies had been too much neglected in certain forms of tetanus. The disease, however, among us, is of exceedingly rare occurrence, and our experience in it, infinitely too limited, to warrant us to speak, in any decisive tone, either of its pathology or treatment. Yet, it may be confidently affirmed, that it has been repeatedly cured by active purging,* and that lately, the foreign journals have presented several instances, in proof of the great utility of copious venesection in the disease.—EDITOR.

ART. XX. *Case of Carotid Aneurism, cured by an Operation.*

By JAMES SYKES, M. D. of Dover, Delaware.

WE are indebted to the justly celebrated John Hunter, for his simple and efficacious treatment of popliteal aneurism—and to Scarpa, the venerable professor of Pavia, for the correct pathology of this disease. Most operators have been induced to try the plan proposed by Mr. Hunter, in other aneurisms, and their success has fully verified the propriety of his practice.—To Sir Astley Cooper, however, the credit is due, for having first led the profession to view aneurism of the carotids as a disease not necessarily fatal.

That highly respectable and accomplished surgeon, Dr. Post, of New-York, performed this operation for the first time in the United States, in 1813. As another instance of the successful treatment of this disease by ligature, I subjoin the following case.

* Vid. Hamilton's work on Purgatives.

Rebecca Billings, aged eighteen years, was, in 1818, thrown from her horse, and, falling on the right side of her neck, experienced at the moment considerable pain—or, to use her own expression, “a sensation of something giving way or bursting.” In the course of two or three months, a small tumour, below the angle of the jaw, was perceptible, which, being considered of no importance, she paid little attention to it: but soon after this, she was seized with pain in the head, accompanied with giddiness, and occasional dimness of sight. The tumour now increased daily, and the pulsation, when I was first consulted in July, 1820, could be perceived at the distance of ten or twelve feet. On pressure, the blood receded from the sac, and returned on the pressure being taken off. Having no doubt of the disease, I stated the necessity of an operation as the only method of relief, and heard no more of the case till the latter end of March, 1821, when I again saw the patient. The symptoms had now become aggravated—and the tumour so much increased, as to be nearly the size of a goose-egg. It extended from the thyroid, or rather below the thyroid cartilage, to a considerable distance above the angle of the jaw. The integuments were much thinner, and she complained of great pain in the head, increased giddiness, and restless nights. To consult her friends on the subject of the operation, she returned home, and presented herself for it on Wednesday morning, the twentieth of June.

The incision was commenced a little below the base of the tumour, and extended downwards for two inches and a half, in the direction of the sterno-mastoideus. By this incision, the skin, cellular substance, and platysma myoides, were divided, and the internal edge of the mastoideus became apparent. Drawing the mastoideus to one side, and separating the cellular substance, sometimes using the edge, and sometimes the handle of the knife, the omo-hyoideus, and nonus descendens, were discovered. Pushing the nonus descendens to one side, the omo-hyoideus was divided, and the sheath of the cervical vessels presented itself. I now separated the artery from the sheath about one inch,

carefully avoiding the par vagum, and introducing an aneurismal needle, armed with a double animal ligature, and dividing the ligature, I first tied the lower one, and immediately after the upper, and left the artery undivided. The edges of the wound were brought together with adhesive straps, a compress and bandage were applied, and the patient put to bed. I experienced in this operation none of the inconveniences of which some surgeons complain, in the continual dilatation and collapse of the internal jugular. In the evening symptoms of hysteria coming on, an anodyne was directed, and she passed a comfortable night.

21st. Free from fever or any alarming symptoms—9 o'clock P. M. considerable pain in the head, with anxiety and restlessness.

22d. Previous night passed uncomfortably, but sleep taking place before morning, she awoke refreshed and composed.

23d. The bowels being constipated, with a slight febrile disposition, an ounce of salts was ordered, which failing to have the desired effect, was repeated in the afternoon. The wound was dressed this day for the first time, looked healthy, and had begun to unite.

24th. Patient still improving, and free from any unfavourable symptom.

25th. Symptoms of hysteria returning, an anodyne was ordered.

26th. Wound dressed again, and looked well.

27th. Wound again dressed, and almost cicatrized.

28th. Patient daily improving: set up a considerable part of this day.

30th. The wound closed, except a small part at the upper extremity. On this day the ligatures came away nearly dissolved, and appeared to have been cut off on the posterior part of the artery. The tumour was at this time much diminished in size.

July 4th. I was considerably alarmed this day, from the appearance of a very feeble pulsation. But my mind was

relieved by finding, on examination, that all the arteries going off from the carotid, above the ligatures, had ceased to pulsate—and that the carotid itself could be plainly felt as high as the lower ligature, and no further. This pulsation continued for at least four or five months, and then entirely disappeared: a similar fact is mentioned by Sir Astley Cooper. It is nearly a year, since this operation was performed, and my patient has experienced good health, with a perfect exemption from any of those symptoms which, previous to the operation, rendered life so uncomfortable.

REVIEWS.

ART. XXI. *A Comparative View of the Nervous and Sensorial System in Man and other Animals.* By JOHN C. WARREN, M. D. Professor of Anatomy and Surgery in the University at Cambridge. Boston, 1822, pp. 151.

WHILE the physiologists and metaphysicians have been busy in disputing on the *location* of the human mind in a certain part of the body, and *appealing* to *assertions* made by authors in defence of their opinions, our distinguished countryman has been engaged in the examination of facts, and in the interrogation of nature herself. Free from any apparent prejudice for or against a particular theory, he has investigated the structure of the brain in man, and various inferior animals, and by the carefulness and accuracy of his observations, has rendered an important service to the cause of true science, by dispersing the errors that flowed from the want of correctly established data.

We are also much indebted to him for referring us in so pleasing a manner to comparative anatomy, for the elucidation of those parts of physiology which are necessarily obscure. The utility of this science, has hitherto been too little known in this country, and even where acknowledged, has seldom been sufficiently employed. It is needless to think of advancing far in the knowledge of the functions of the human system, without a thorough and careful examination of the varieties of structure and function to be perceived in the different classes of inferior animals, and studying the analogies which exist, and may be applied to the explanation of phenomena, that might otherwise remain forever veiled from our eyes. It is only by resorting to the

study of comparative anatomy and physiology, that we can hope to acquire any useful idea of the great general principles employed by nature, in the performance of her operations: it is only by scrutinizing the modifications of structure, that we can expect to understand modifications of action—it is solely on a fair and impartial deduction, made from a candid examination of *facts*, that we can successfully erect a superstructure capable of bidding defiance to the storms of controversy, or of withstanding the silent injuries of time.

Dr. Warren begins his work with a well conducted examination of zoological arrangement, and adopts that, which was proposed by Linné, and since modified and improved by Cuvier and others. His views of the anatomy in the different classes, are highly satisfactory and correct, and his *comparisons* are made in a very interesting manner. These, on account of their length, we must refrain from quoting, but we cannot deny ourselves the pleasure of presenting the reader with the conclusions which he draws from the whole examination.

“In the first place, we are allowed, I think, to infer that the brain and nerves are not essentially connected in function; or, at least, that this is true in regard to the function of the nerves. There appears to be no relative proportion in the magnitude of these organs in different animals. In man, and most of the mammalia, the bulk of the brain is considerable, compared to that of the nerves; while in reptiles and fishes, the *nerves* may compare in size with those of the superior classes, but the brain is very small. The same is true, even in different orders of mammalia; in the horse, for example, the brain is small, the nerves of great size.—Another fact bearing on this point is, that in the invertebral animals there is no proper brain: at least, the organ we call by this name in the acephalous mollusca, crustacea, worms, and insects, differs greatly from the brain of the vertebral animals, and is in truth little different from the ganglia. Yet in these animals the nerves are very distinct, and even, in many, large, in proportion to the other organs. Analogical reasoning is useful where we cannot resort to facts; but we would not have it applied too confidently, nor even without recollecting that the degree of belief due to it is lower than that belonging to fact.

“In the second place, we may conclude that the brain is not

the source of the muscular power. This conclusion is founded on a consideration of the disproportion in the size of this organ to the muscular strength of various animals. In the horse, the brain, as just stated, is small, the muscular vigour great; in the great sea shark, *squalus maximus*, the brain, compared with the body, is near the smallest among the vertebral animals; while the strength of the animal is so great that one of them has been known to drag a vessel of seventy tons, under full sail, against the wind.

“Third. It seems probable that the muscular power does not take its source from the nerves. The facts in support of this opinion are few in number, and the principal one is the non-existence of nerves in some animals capable of moving. In the gelatinous polypi and some other zoophytes, no nerves have been discovered, and we are, from their texture, led to believe it impossible they should have any such nerves as other animals; yet they move, some of them with considerable rapidity.

“Fourth. Many of the facts noticed, tend to prove that the nerves receive the impressions of objects made on the external senses, and that by them these impressions are transmitted to the brain. It is not intended here to involve the hypothesis, that perception in the brain is caused by any kind of movement in the matter of the nerve; all that we wish to say is, that when the nerve expanded in an organ is affected by objects to which the organ is susceptible, it is in consequence of this affection that the brain perceives; and that, without the continuity of nerve, the brain cannot perceive. This has been thought to be satisfactorily proved by the suspension of perception, consequent on the division of a nerve; but those who maintain the opposite doctrine, consider the division of a nerve so far to impair its perfection, as to render the experiment uncertain. If we look to comparative anatomy to determine these questions, we find that whenever an organ of sense is more than commonly developed, the nerve belonging to it, is in the same degree developed in the organ. Further, that the size of the nerve before reaching the organ is always proportioned to the development of the nerve and organ; and that whenever a sense is wanting, the nerve usually going to the organ of that sense is also wanting. In birds, the sense of sight being acute, the optic nerve is largely developed in the organ, the size of the nerve before reaching it is considerable, and there is a ventricle connected with the nerve. We have before noticed the same fact in regard to the olfactory in some quadrupeds. Why should the optic nerve be of large size between the brain and the eye, except to transmit to the brain, the impressions received in the eye? In the whale, the organ of smell is wanting; the nerve, sent to it in other mammalia, is also wanting. In some birds, the organ of touch is

placed at the extremity of the bill, and there is a correspondent arrangement of elegant nerves of the fifth pair. The same is true of certain quadrupeds, as the elephant, which has the sense of touch at the extremity of the trunk; and the ornythoryncus paradoxus, the duck billed animal of New Holland. In this singular creature, most of the qualities of a quadruped are united with some of those of a bird; and particularly, it has a bill like a duck, covered with a sensible membrane, which enables it to discover its food in the mud, where it could not employ the sense of sight; and the distribution of nerves accords with the peculiar situation of this sense.

“The manner in which the nerves act in transmitting impressions to the brain, or causing perceptions in this organ, is no more explained by comparative anatomy than by the numerous experiments and theories on nervous action.—Nor have we much reason to expect we shall ever be well acquainted with the functions of this part of the animal fabric; though Sir Everard Home seems to think his late discovery of the mucous matter, connecting the globules of nerves, will throw light on its mode of operation.

“Fifth. The brain is the common centre for receiving the impressions of the senses transmitted by the nerves, and is therefore rightly called *sensorium commune*; and where there is not a proper brain, the ganglion, which supplies its place, performs the same office.—In all animals with organs of external sense, the nerves belonging to these organs go from them to the brain. This is true, not only in the more perfect animals, it is so in the mollusca, crustacea, insects, and annelides: with the inconsiderable exception, that in some instances, the nerves of an organ of sense are connected with the brain, or substituted ganglion, through the medium of the collar, instead of being immediately so with the brain.

“Sixth. This comparative view of the sensorial system does not seem to support the opinion, that the difference in the intellectual faculties of man and animals is to be explained by a difference in organization alone.”

This extract will be sufficient to show the importance and usefulness of our author's investigations, and to establish the truth of the opinions we have advanced relative to comparative anatomy. The candour with which his statements are made—the freedom from prejudice in his conclusions—and the clear and energetic style of his reasoning, cannot fail to give the highest pleasure to the reader.

We are also persuaded, that the following quotation from

the work, will be perused with deep interest, by those who have attended to the now fashionable doctrines of craniology. If it be considered attentively, it must produce a conviction of the insufficiency of that support which was thought to be derived by this doctrine, from the science of comparative anatomy.

“The authors of the craniological or physiognomical system, seemed disposed to refer frequently to comparative anatomy for the support of their doctrines ; but so far as I have observed, there do not appear to be very good grounds for such a reference. If any animal be remarkable for a propensity, and exhibit a peculiarity in the form of the cranium, they connect these two facts together, and consider the peculiar part of the cranium or of the corresponding brain to be the seat of the propensity ; and this they think certain when such facts concur in regard to more than one kind of animals ; and they believe that these facts tend to confirm the connexion between similar appearances and propensities in the human species.

“One or two examples will be sufficient to show how far they are justified in their appeal to the anatomy of animals. The organ of *combativeness*, or courage, is said to reside in the space between and behind the ears ; that is, in the part which corresponds to the posterior inferior angle of the parietal bone, behind the mastoid process : and ‘courageous animals have the head between and behind the ears large.’* Some of them, in truth, have the head large, but not the brain. The cavity of the cranium in the *lion* and in *large dogs* is oblong in a direction from before backward ; the skull is narrow at this part, and the appearance spoken of does not exist in the bones. In the skulls of two lions in my possession, and various large dogs, the cranium is more narrow at this part than in the skulls of *various monkeys*, and is not materially broader than in the sheep. In birds, the cranium of an owl is broader than that of the eagle.—The great apparent breadth in this part of the head of the lion, is produced by the enormous thickness of the temporal muscles ; and when they are stripped off, the skull is seen to be actually narrow.

“The organ of *amativeness*, which Dr. Gall formerly called the organ of physical sensibility, is placed in the cerebellum, its region externally, corresponding with the lowest posterior part of the os occipitis. An examination of this region in animals, remarkable for the propensity, does not exhibit a considerable development of the part. In the monkeys generally, it is much less developed than in man ; and in the baboon, the most extra-

* Physiognomical System, p. 302.

ordinary of all animals for the propensity,* it is in no way remarkable. Further, a comparison of the proportionate bulk of the cerebellum is still more unfavourable to this opinion; although Dr. Spurzheim seems to consider this as one of his strongest positions; for the cerebella, he says, are always proportioned to the propensity; they are larger in men and males, than in women and females; and, on the whole, he concludes, 'that this organ and its special faculty are fairly established.'† If the table of the cerebellum, before given, be noticed, it will appear that the proportion of the cerebellum is, in many animals, greater than in the monkeys; and that precisely the same proportion exists in the baboon and in the horse: animals differing widely in the degree of this propensity.

"On comparing the skulls of various birds, I have not been able to verify, in a distinct manner, the supposed situation of the *organ of tune*; and the remarks relating to some other parts of the structure of the brain, and to its organs, in animals, have not appeared to be stated in such a form as to render it possible to determine their exactness."

It is impossible to read these observations and not confess, that those who have made triumphant *assertions*, that they were supported in the doctrine of craniology by comparative anatomy, are now entirely deprived of its aid. We had long entertained the belief, that an examination of the relation between the external figure of the skull, and the internal development of the brain, would not justify the conclusions drawn, and we are now happy to find, that this point at least, is incontestably settled. Future inquirers need no longer be misled, by inferences heretofore so hastily made, but must seek for new supports to their doctrine, in a closer and more correct observation of nature. Doubtless, the implicit reliance placed in the correctness of many assertions, made by the authors of the *new system*, has been a great obstacle to the progress of truth, and has retarded the establishment or refutation of the doctrine.

In taking leave of this work, we should be unjust, were we not to express our gratification, and to commend it earnestly to the profession, as a production worthy of their serious attention and imitation. The neatness of the printing, and the beauty of the plates, should not be passed without

* V. Buffon. Hist. Nat. des singes.

† Phys. System, p. 284.

remark. These, however, are its slightest merits. The excellence of the investigations, the correctness of the inductions, and the truly candid and philosophical spirit exhibited throughout, will ensure it a favourable reception, from every zealous cultivator of the fertile field of natural science.

NOTE.—As the views, and course of reasoning, in relation to craniology, advanced in the above review, differ essentially from those inculcated in a review in our last number, we deem it right to state, that the two articles were written by different individuals, who have equal claims to be heard on the subject, through the medium of this Journal.—EDITOR.

ART. XXII. *A Treatise on Nervous Diseases.* By JOHN COOKE, M. D. F. A. S. Fellow of the Royal College of Physicians, and late Physician to the London Hospital. In two Vols. Vol. I. *On Apoplexy, including Apoplexia Hydrocephalica, or water in the head—with an introductory account of the opinions of ancient and modern Physiologists, respecting the nature and uses of the nervous system.* Read at the College, as the Croonian Lectures of the year 1819. London. Printed for Longman, Hurst, Reese, Orme and Brown. 1821.

NO medical writer of the present day is more distinguished, than the author of the work before us, by patient investigation, and recondite research—and we welcome most cordially, every thing which comes from his pen, as a rich contribution to the stock of useful knowledge. In the discussion of a subject, he brings to it the rarest erudition—tracing it in all the stages of its progress, from the earliest inquiries into it, to the final results—leaving it, by the extent and minuteness of his perquisitions, nearly exhausted.

Exactly this course he has pursued with regard to apo-

plexy, the disease which occupies principally the present volume. Commencing with an account of the primitive notions concerning it—he presents us, in succession, with the various views subsequently entertained, and concludes, with a faithful exhibition of the existing information, in relation both to its pathology and treatment.

But, Dr Cooke is not a mere compiler. The historical narrative, thus carefully conducted, is interspersed throughout with critical observations, and enriched by many original suggestions, the fruits of his own experience and reflexions. We are not aware, that we could render our readers a more acceptable service, than by offering to them an analytical review of a work of such extraordinary merit, which not having been reprinted in this country, is accessible only to a very few. In executing this undertaking, however, we shall not so literally adhere to the text, as to exclude any additional matter, which our own reading, or observations, may enable us to afford. Even, since the publication of this work, short as is the interval, some new light has been shed on the cerebral affections, and particularly apoplexy, by the cultivators of pathology in France, which having the strongest claims to notice, we shall endeavour to interweave with our proposed synopsis.

As introductory to the main design, we have in the first place, a pretty copious dissertation, “on the nature and uses of the nervous system,” which we think offers a more complete view of the subject, than can elsewhere be met with in the same compass. Deeply interesting, however, as this disquisition is, we cannot give to our readers any part of it; so compactly is it put together, that it is wholly unsusceptible of analysis or abridgment.

Nosologists have distinguished nervous diseases, as they affect the animal, the vital, or the natural functions. Of the former order, are apoplexy, palsy and epilepsy, on each of which, we have the promise of our author, of an ample treatise, and which hereafter, we shall not fail to notice. But our immediate concern is with the section of the work al-

ready published, embracing, as we before intimated, the consideration of apoplexy.

“The term *apoplexia* was employed by the Greeks, and is still used, to denote a disease in which the patient falls to the ground, often suddenly, and lies without sense, or voluntary motion. Persons, instantaneously, thus affected, as if struck by lightning, were by the ancients, denominated *attoniti, syderati*.” The preceding is the definition of our author of apoplexy, which we think is perspicuous, and sufficiently comprehensive.

This disease, so awful in its aspect and consequences, seems very early to have attracted medical attention. By Hippocrates it is distinctly noticed, and from that remote period to the present, we have had a continued series of inquiries relative to its pathology and treatment. No age is entirely exempt from apoplexy, though it is chiefly to be met with in advanced life. It rarely or never occurs before puberty—commences, for the most part, about the meridian of our existence, then becomes more common, and the largest number of cases is found from the sixtieth to the seventieth year of our age.*

An attack of apoplexy comes on in different ways. In most cases, however, the individual falls down suddenly, deprived of sense and motion, and lies as if he was profoundly asleep, with a flushed or livid countenance, stertorous respiration, frothing at the mouth, a full, slow, interrupted pulse, and great inequality of temperature. In this state, he may lie for an indefinite time, sometimes entirely recovers, though very generally paralysis ensues. There are other cases in which the stomach suffers much, and here we have nausea and vomiting, with severe pain in the head, or tension of the forehead, and the person sinks as in syncope. The face is pale, the surface throughout cold, and in some degree collapsed, and the pulse dimi-

* On this point, we have a table by Rochoux, which gives the following result of sixty cases. Between the ages of 20 and 30, two cases; from 30 to 40, eight; from 40 to 50, seven; from 50 to 60, ten; from 60 to 70, twenty-three; from 70 to 80, twelve; from 80 to 90, one.

nitive. Convulsions, under such circumstances, are apt to take place, succeeded by paralysis to a greater or less extent. But quite as frequently the individual emerges into health in a short time. Cases, however, occur, of this and other forms of the disease, of such violence, that life is immediately extinguished, without a struggle; though we learn, from good authority, that even a fatal paroxysm hardly ever terminates sooner than one or two hours, and is most usually protracted for days.*

The causes of this disease may, with propriety, be divided into the remote and exciting. As a circumstance predisposing to it, the period of life, we have seen, has a material influence, and which probably operates by a decay in the moving powers of the circulation, in a part, or the whole, from feebleness, or certain organic injuries, hereafter to be indicated. Whatever prematurely impairs or enervates the constitution, as the habits of intemperance or debauchery, or those of indolence and inactivity, conduces to the same effect. Extremes of temperature, either hot or cold, moist or dry, seem also to create a predisposition, though excessive heat is most productive of it. The largest number of cases, however, is said by some writers to occur in the vernal and autumnal equinoxes. By a peculiar distemperature of the atmosphere, an increased liability to the disease is occasionally generated,—and it is expressly stated by Baglivi, that apoplexy has sometimes epidemically prevailed in Italy.

Besides these causes, there is a certain conformation, which may be congenital or acquired, that lays the foundation of, perhaps, the most common predisposition. “The large head, the florid complexion, the short and thick neck, the broad shoulders, the expanded chest, the tumid abdomen, the low stature, and general fulness and obesity, form a figure and condition, which have been immemorially designated, as furnishing the strongest apoplectic tendencies.”†

* Cooke, p. 175.

† Bricheteau.

In enumerating the exciting causes, we shall select out of the extensive catalogue such only as are most common and operative. These are excessive indulgence in eating or drinking, or certain irritating ingesta, or narcotic substances taken into the stomach, or worms, or offensive sordes, or constipation. But the list is not complete: as often, perhaps more so, may the disease be directly traced to an exposure to the sun, inducing insolation, or hanging the head over a fire, or remaining long in a warm bath,—or the reverse, the shock of a cold bath,—or subjecting the feet to become cold, or violent exertion of the body, especially in a particular posture, or intense exercise of the intellect, or vehement emotions, whether of joy, or rage, or terror,—and, in short, every impulse, corporeal or mental, calculated to drive an undue current of blood on the brain, or which interrupts its return.

Examinations *post mortem* disclose various appearances. Every part of the vascular system of the brain is sometimes replete with blood. The vessels, both arteries and veins, are found injected, and “with extravasations between the membranes, on its surface, about its basis, among its convolutions, either mixed with serum, or in its natural state, and of its usual colour, though sometimes it is dark, grumous, and concreted.* It was remarked by Morgagni, and which has been confirmed by Rochoux, by Serres, and, generally, by the late cultivators of pathological anatomy, that though such extravasations of blood are occasionally to be met with throughout the cerebral structure, they mostly take place in the corpus striatum, or thalami nervorum opticorum. Examples of this sort are still rarer in the cerebellum. It is supposed by Rochoux† not to happen more than once in fifty times, and Morgagni reports only a solitary instance.‡ This seems to be the common opinion of the French writers, but Cheyne tells us, that he met with these appearances oftener in the cerebellum.§

* Cooke, p. 178.

† Journal Comp. Oct. 1816, p. 292.

‡ Epist. 2. fol. 22.

§ Cases of Apoplexy, by J. Cheyne, M. D.

The meninges of the brain are found, in some cases, injected as well as inflamed, with their structure thickened, and covered with miliary granulations, and otherwise altered.

In other instances, with little or no sanguinous extravasations, effusions of serum are to be seen. "It appears generally in its natural state, clear and insipid, sometimes of a saltish taste, not unfrequently of a yellowish or reddish colour, and occasionally of a gelatinous consistence, either transparent or opaque, and of a brown, or cineritious hue."*

These are the customary phenomena which dissection reveals. But in some cases, without such appearances, "every variety of organic lesion is discovered, particularly of the corpus striatum, the plexus choroides, the septum lucidum, the pineal gland, the parietes of the ventricles, and the medullary substance of the brain."† These consist of encisted or steatomous tumours, scirrhi, ossifications, polypous concretions, fungosities, hydatids, exostoses, and such like derangements, with morbid affections of other parts, as of the heart, the great vessels, the lungs, the liver, the stomach and intestines.‡

What we have mentioned, are undoubtedly the ordinary appearances, as regards the cranium, observed in apoplexy. But the instances are not rare, where, in place of extravasations of blood, or effusions of serum, the vessels are seen merely congested or engorged, without the slightest evidence of rupture, or organic lesion of any kind.§ It is also true, that death has happened in this disease, where on inspection, nothing morbid whatever could be discerned in the brain, or its appendages. But on this point, we cannot do better than cite the clear and explicit language of a distinguished modern authority.

"The particular affections called apoplexy and palsy," says Mr. Carlisle, "have been illustrated by anatomical inspection, and it is well known, that the greatest number of cases have shown lesions of the brain or its vessels, suffi-

* Cooke, p. 179.

† Ib. p. 185.

‡ Ib. p. 133 and 186.

§ Ib. p. 190.

cient to explain the events. But it is also certain, that examples frequently occur, where no appearance of rupture or effusion in those parts could be found. That apoplexy or temporary palsy, may arise from vascular congestion within the skull, is to be inferred from analogous effects, following the known stoppage of the venous return of blood from the brain, and such congestion might even extend to the final suppression of all the vital functions, and leave no trace of physical derangement after death. Other causes are also capable of inducing fatal derangements of the sensorial organs—for excessive doses of opium or ardent spirits appear to extinguish life, by their direct action upon the substance of the brain, independently of the disordered changes which they induce in the circulatory and respiratory organs.”*

* As affording evidence to the same purport, we take the following extract from Dr. Abercrombie. “It is unnecessary to multiply cases of simple apoplexy, or apoplexy fatal without any morbid appearance. The records of medicine abound with examples of it, and with extensive controversies in regard to its nature and cause. In a remarkable case of it which occurred to Willis,* he supposes, that the animal spirits were suddenly extinguished or suffocated by certain malignant or narcotic particles. Seelmatter ascribes it to a sudden relaxation of the nerves, Nicolai to a spasm of the meninges, and Lecat and Weikard to a spasm of the nerves and vessels of the brain. Kortum endeavours to reconcile the discordant opinions of his predecessors, by referring all these cases to a new species of apoplectic affections, which he styles *apoplexia nervosa*. Upon the same principle, other modifications of apoplexy have been contended for, which have been supposed to include these obscure and inexplicable cases, as the *apoplexia convulsiva*, and *apoplexia hysterica* of Burserius, Tissot, and other writers. Tissot* mentions a woman who, after complaining for some time of headache, was attacked with great and sudden increase of the pain, accompanied by loss of speech, and died in a short time. On dissection no morbid appearance could be detected. A young woman, mentioned by the same writer, having suffered from a fright during the flow of the menses, the discharge stopped, and she became subject to frequent ‘*lypothymia*.’ After having suffered from this and various other symptoms for several months, she fell into a profound sleep, from which nothing could rouse her: this continued four days, she then came out of it, and appeared to be recovering, when after several days she was seized

* Willis, *De Anima Brutorum*, Part II. p. 276.

† Tissot, *Epist. Med. Var.* p. 80.

It would appear from the preceding account of the *post mortem appearances*, in connexion with the symptoms, that the proximate cause of apoplexy is generally compression of the brain, either from engorgement, or extravasations of blood, or effusions of serous fluids. But this hypothesis, so long entertained in the schools, has recently been controverted, and with such effect, that its validity is by no means so well established as formerly. This has been done by a series of experiments by M. Serres, a celebrated physician of France, who thinks that he is entitled to the conclusion, that so far from apoplexy being occasioned by cerebral compression, the brain is not susceptible of such a state.

“As apoplexy in man chiefly occurs in the decline of life, he selected an old dog as the subject of his first experiment. He trepanned the middle part of the cranium of this animal, over the superior longitudinal sinus, and introduced a very fine bis-

with severe headache, anxiety and convulsions, and died. No morbid appearance could be detected in any of the viscera. Lecat attaches much importance to a case which occurred to him, in which, after fatal apoplexy, he found no morbid appearance except a small quantity of extravasated blood, not exceeding a tea-spoonful. This, he contends, could not account for the disease upon the principle of pressure, but was to be considered rather as an effect than a cause—an effect of the spasm of the vessels, which he conceived to be the proximate cause of apoplexy. This explanation did not satisfy his contemporaries, and various doctrines were brought forward to account for this form of the disease. Some maintained that the medullary substance of the brain is much more susceptible of compression than the cineritious: but the prevailing opinion was, that there are certain parts of the brain, where, by retarding the course of the animal spirits, slight causes of compression are capable of producing the most urgent symptoms. Hence arose a new and extensive controversy respecting the origin and progress of these animal spirits, and the course by which they make their exit from the brain. This important function was by one assigned to the aqueduct of Silvius, by another to the fourth ventricle, by a third to the infundibulum, by a fourth to the choroid plexus and straight sinus—and fatal apoplexy was supposed to be produced by very slight causes existing at these particular parts, and even by causes so minute as altogether to elude observation. To these ingenious speculations we cannot assign a much higher place than to the ethers and vortices of the old philosophy, but the number and variety of them admit of this conclusion, that it has been matter of extensive observation, that apoplexy is in many cases fatal without any morbid appearance, and in others with appearances so slight as to be altogether inadequate to account for the disease.

toury, so as completely to perforate the sinus, and stopped the external opening in order to confine the effused blood to the interior. The dog was then let loose: he ran about the room trying to make his escape. Three hours afterwards he appeared so little altered from his usual state, that it was doubted whether an effusion had actually taken place or not. On opening the cranium, however, a very large clot of blood was found in the great interlobular scissure, and another, somewhat less, upon the left hemisphere. An experiment of the same kind was made upon a young dog, with the same result. These experiments were repeated many times upon rabbits and birds, and always with similar effects: no somnolency was occasioned, nor any of the symptoms which accompany apoplexy.

“M. Serres then proceeded to try the effects of effusions of blood forced into the ventricles of the brain. He trepanned a dog as before, over the middle part of the superior longitudinal sinus, and introduced a very small bistoury into the great interlobular scissure: he pierced the corpus callosum, and so directed the point of the instrument to the left, as to enter the ventricle on that side. He then withdrew it, and closed the external opening. The animal, for about a minute, was affected with vertigo: he was dull through the whole day, and his pulse was a little agitated, and there was a considerable alteration in his appearance: his sleep in the night was disturbed—in the morning he walked about the laboratory, and appeared less indisposed than on the preceding evening—but there was no somnolency. On opening the cranium, the effused blood was found to have filled the great interlobular scissure, and to have penetrated into the left ventricle, which contained an ounce and a half of it. A small cavity was found in the anterior part of the corpus callosum. A rabbit two months old was subjected to a similar experiment, and with similar consequences.

“After this, M. Serres proceeded to try the effects of artificial cavities made in the substance of the brain. For the subject of this experiment he chose an old dog, and made an opening over the lateral and somewhat posterior part of the longitudinal sinus. The bistoury pierced the left hemisphere, and brought away about two drachms of its substance; but no somnolency, or impeded respiration, supervened. A cavity, containing a clot of blood of the size of a nut, was found situated at the middle part of this lobe. In another animal, he made a cavity in each lobe, without any apoplectic symptoms. He pierced through the two lobes in a pigeon with a very large pin, with the same result: a transverse cavity made from one side of the cranium to the other, produced no somnolency. In another experiment he made an opening into the middle part of one hemisphere of the brain, and took away a certain quantity of cerebral sub-

stance: he then introduced a cork into the aperture, with a view to increase compression. A complete hemiplegia was the consequence; but there was no apoplexy or somnolency. These experiments were repeated in various ways, on birds, rabbits, and other animals, and always with the same effects.

"Hence it appears, says M. Serres, that effusions of blood do not produce apoplexy, whether lodged between the cranium and dura mater, or between that membrane and the brain; whether they occupy the great interlobular scissure, and thus lie upon the corpus callosum; whether cavities be made in the fore, the hind, or middle part of the hemispheres, or quite through them both; or, finally, whether, piercing through the corpus callosum, we penetrate into the ventricles of the brain, and fill these cavities. On whatever animals we try these experiments, whether on birds, on rabbits, or on dogs, the result is the same: and, by analogy, M. Serres concludes, that apoplexy in man ought not to be attributed to such effusions.

"After having thus, by experiment, endeavoured to prove that apoplexy and palsy are not produced by pressure, M. Serres attempts, by reasoning, to show the absurdity of the doctrine which attributes these diseases to that cause. Do the facts of pathological anatomy, relative to the brain of apoplectic persons, he asks, contradict my experiments? Has a constant agreement betwixt the accession of apoplexy and the formation of effusions, been observed? Does the doctrine of compression from effusion account for the formation of apoplexies, their progress, and termination in death or in recovery? On dissection, serous, serosanguineous, and bloody effusions," M. Serres, says, "have been found within the cranium, without any symptoms of apoplexy preceding death. How is this to be accounted for? Can a cause exist without an effect? Apoplexies, we are informed, are sometimes in their course subject to *paroxysmal revolutions*. How is this to be understood on the supposition of compression from effusion?—It is well known that apoplexies accompanied with effusion may be cured. In these cases, what becomes of the effused fluid? Is it absorbed, or does it remain after the cure?" M. Serres mentions instances in which apoplexy has been cured, and the patient has continued well, although the effusion which accompanied it remained, and appeared after death. The effect of these fluids, then, in man, he says, is the same as that which we have seen in brute animals; neither the origin, the severity, nor the duration of apoplexy are to be attributed to them.

"The sudden accession of this disease, its periodical returns, which are sometimes observed, and experiments upon living animals, all lead us, M. Serres says, to the belief that effusion is the effect, not the cause, of apoplexy: a conclusion, he observes, very important for the pathology of the brain, and to which he requests the utmost attention of observers."

Conceding the accuracy of these inquiries,—that the love of paradox or novelty has led into no deceptions or misrepresentations, against which injurious suspicions, M. Serres is vindicated by the high respectability of his character, it does still appear to us that he has not satisfactorily made out his case, and, at all events, to the extent which he claims. The first part of his proposition, that the *brain is not compressible*, is opposed by general observation, by particular facts, and by direct and positive experiment. In stating the evidence to this point, it will be enough, in relation to our common experience, merely to advert to the history of those surgical operations, in which so much relief is afforded, in certain cases, by the removal of a depressed portion of the cranium. The other part of the proof we shall give more in detail, as less familiar or well known.

In this city, Philadelphia, there was formerly a man who, in some conflict with the Indians, lost a part of one of the parietal bones, leaving the brain at this point without the cranial covering. To procure money, he exhibited himself, permitting pressure on the brain with the finger, which, when applied with some force, instantly induced coma, and a loss of sense and motion. Exactly such a case we met with in Europe, and we presume that they are not at all uncommon.*

The following experiment is related by M. Portal. He

* While writing on this subject, we met with an account of the following case in the *London Magazine* for the present year.

“There was some years since a beggar at Paris, part of whose skull had been removed, without injuring the brain, in consequence of a wound. This being healed, he wore a plate upon the part where the skull was wanting, to prevent the brain from being hurt by every accidental touch. For a small piece of money, this poor creature took off the plate, and allowed the brain to be gently pressed, by laying a handkerchief, or some such light substance, upon it. This immediately occasioned a dimness of sight and drowsiness;—the pressure being somewhat augmented, he became quite insensible, with high breathing, and every symptom of a person in an apoplexy—from which state he never failed soon to recover, upon the pressure being removed. As this experiment was attended with no pain, it was often repeated, and always with the same effect.”

trepanned a dog, and compressed the brain with his finger, &c. Next, he poured through a funnel adapted to the aperture, at different times, water and mercury, so as to induce a graduated compression, more or less strong, on the brain. The effects were similar with each fluid. As soon as the compression was felt, the animal ceased to bark—when increased, it became convulsed—and, on a greater degree of compression, coma, with stertorous respiration, took place. On the removal of the pressure, the functions were restored. This experiment was often repeated, and with the same results.

Nearly a similar experiment we have from Sir Astley Cooper.

He trepanned a dog, and detached the dura mater in a circle from the inner table of the skull, to the extent of half an inch.* He then pressed on the dura mater, so as to depress it about a fourth of an inch, and the dog exhibited no signs of uneasiness. He then pressed upon it to half an inch of depression, and the animal showed great signs of uneasiness, endeavouring to escape from his grasp with all its efforts. He then pressed to three-quarters of an inch, and the animal became torpid, breathed laboriously, with a slow and irregular pulse. On removing the pressure, the dog, in half a minute, started from the table, turned several times around, as if giddy, and then staggered away.*

Taking the whole of what we have stated into consideration, it seems fair to infer, that the brain is susceptible of compression, and that, however induced, whether by engorgement or extravasations, we have, as a result, the apoplectic state,—though a *considerable degree of pressure* is required for its production. It is probably owing to the latter circumstance, the want of adequate compression, that we sometimes meet with collections of extravasated blood in the brain, without those effects which a larger quantity would have caused.

As regards the particular pathological views of Serres

* Cooke on Palsy, p. 86, 87.

and his followers, we shall hereafter, in our promised notice of Dr. Cooke's work on Palsy, present them so fully, that they may be readily comprehended, since, differing as we may as to their value, they come with such weight of authority, as eminently to deserve attention.* It will, perhaps, now answer our purpose, merely to mention, that, disclaiming extravasations and effusions, of every species, as occasioning apoplexy, he maintains, that it originates exclusively in an *altered condition of the brain itself, or its membranes, the disease being modified by its location*. Thus, says he, "1st, when an apoplectic attack presents no symptom of paralysis, we may presume that its seat is in the meninges, and that the substance of the brain is not dilacerated or altered.

"2d, That when, on the contrary, paralysis becomes complicated with apoplexy, it is no longer in the meninges, but in the brain itself, which is the principal seat of the irritation.

"3d, That serous, sanguineous, sero-sanguineous, and purulent effusions, are owing to irritation in the meninges, or the brain, or to rupture of arteries or veins, which may take place during apoplexy, though subsequent, and as the effect of the previous irritation."

Limited to certain cases, we have reason to believe the doctrine to be just. But in a general or extensive application to the disease, it fails, or our observations are fallacious, and we labour under an extraordinary delusion on the subject.

The views of Dr. Abercrombie of Edinburgh, recently promulgated,† are also somewhat peculiar and original, as to the pathology of apoplexy. By a long course of reasoning, he is conducted to the conclusion, that the disease

* We have, since we commenced writing this article, received Dr. Cooke's Treatises both on Palsy and Epilepsy, and find that he has fully sustained his reputation for profound research and adroit analysis. In our very next number, we shall give a review of one, perhaps both, of these works.

† Edinburgh Med. and Chir. Journal, vol. xiv.

does not depend *on pressure, or an undue determination of blood to the brain, but is owing only to an interrupted circulation in that organ*, from more blood entering by the arteries than can be returned by the veins.

“The speculations to which I have now referred have been succeeded by the doctrine of increased determination of blood to the head, but I think it may be doubted whether this expression will bear examination, or whether it conveys any precise principle. The blood being propelled in every direction by an impulse primarily derived from the heart, it is not easy to conceive how, in the natural state of the parts, it should be propelled to the head with greater force, or in greater relative quantity, than to any other part of the body. Any interruption to the passage of the blood in the descending aorta, might, indeed, give rise to an undue pressure upon the carotid and subclavian arteries, and if an artery be enlarged from whatever cause, the quantity of blood contained in it must be increased, but these principles, the effect of which we see in the enlargement of anastomosing branches, when a principal artery has been tied, have nothing to do with the doctrine of apoplexy. The brain, indeed, from its extreme delicacy, may be more likely than other organs to be affected by a general increase of the quantity of blood, or a general increase of its impetus, but I know no principle on which we can suppose, that, in the natural state of the vessels, the blood can be sent with greater impetus, or in greater quantity into the carotid, than into the subclavian, or any other great artery. To these considerations we must add the important fact, that the apoplectic attack often takes place with symptoms opposite to those that would accompany determination to the head, did such a state really exist, the face being in many cases pale and the pulse feeble. Upon all these grounds, I think we must admit that the doctrine of determination to the head is not supported by the principles of pathology, and does not accord with the phenomena of apoplexy.”

On this doctrine we are not prepared, at present, to comment to any extent. It strikes us as ingenious, and certainly is very plausibly made out, though repugnant to facts, and the best physiological and pathological views. We would now merely ask, “if more blood enters by the arteries than can be returned by the veins,” how is it possible for the brain, which completely fills up every part of the cranium, to escape pressure?

Yet whatever view we may take of the subject, we shall

find ourselves exceedingly embarrassed as to the proximate cause of apoplexy. This arises from the various forms which the disease presents, and the different and even contradictory phenomena on dissection. It is well remarked by Dr. Abercrombie, that, as regards those affections,—

“ 1. Many of them are speedily fatal, and we find on dissection, extensive extravasation of blood.

“ 2. Many of them recover speedily and perfectly—and in these probably such extravasation did not take place.

“ 3. In many of the fatal cases, we find only serous effusion, often in very small quantity, and having in other cases observed effusion to an equal or greater extent, without apoplexy, we cannot consider the effusion as the cause of the disease.

“ 4. In many fatal cases, no morbid appearance can be detected on the most careful examination.”

Nosologists have commonly divided apoplexy into *sanguineous* and *serous*, as an extravasation of blood, or an effusion of serum, may be the supposed cause. This arrangement we shall not adopt. It is very doubtful, in the first place, whether serous effusions ever produce the disease, and even if they do, the distinction in the cases is not to be recognised, and leads to no important practical difference. These are points, however, which we shall more fully examine when we come, hereafter, to the consideration of palsy.

That apoplexy arises in the stomach as well as in the brain, is sufficiently demonstrated by the cause, the symptoms, and mode of cure of the different cases, and is indeed, now, pretty generally admitted. Conforming to this view, therefore, we shall consider the disease under the two heads of *gastric*, and *cerebral* apoplexy.

After the ample history which we have presented of apoplexy, it will be recognised with sufficient readiness, without entering much into the diagnosis. It may therefore be sufficient for us to state, that epilepsy is the case which most nearly resembles it, so much so indeed, that by some they are considered as the same disease. But they differ essentially. As a ground of distinction, it may now be remarked, that though in epilepsy the person falls down suddenly as in apoplexy, there is much spasmodic and convulsive

movement, and especially of the muscles of the face—whereas, in the other case, he lies motionless, as in heavy sleep, snores, and has stertorous breathing. The paroxysm of epilepsy too, soon passes off, while the other endures for hours or even days. The muscles in the former are convulsed or rigid, and in the latter universally relaxed. As respects carus, cataphora, coma and lethargus, these we consider only as gradations of the same disease, without any specific difference. The fit of intoxication is sometimes, it must be admitted, very analogous to genuine apoplexy. But it may be distinguished from it, by an inquiry into the history of the case, by the odour of liquor in the breath, when it proceeds from drunkenness, *by the pouting of the upper lip, and by its retention of sensibility to the impression of water dropped n it.*

Exactly, however, in proportion, as it is in a practical view important, so is it difficult to distinguish the several forms of apoplexy originating in different causes, and located in different seats. It can, in fact, be only done by a minute and careful perquisition into the history of the case. Yet we are not entirely destitute of the ground work of a diagnosis. The cases radicated in the stomach, are commonly denoted by more or less previous gastric disorder—as sensations of oppression about the precordia. The general symptoms of dyspepsia, such as acid eructations, flatulence, tenderness of the epigastric or hypochondric regions, irritation of various kinds, resembling sometimes the indications of worms, or of sordes—pains and other uneasiness of the bowels, the habit of constipation, and the usual effects it produces, as the furred, loaded tongue, foul breath, and the secretions or excretions, whether urinary or alvine, variously vitiated. These are signs which will aid us in ambiguous cases. But, it often happens, that an attack may be traced, without the slightest difficulty, to causes which act immediately on the stomach, as to a full meal, or something indigestible, or to an undue indulgence in drinking, or to some narcotic substance swallowed.

The symptoms of the paroxysm in the two forms of the

disease, also vary to a certain extent. When the stomach is the seat of it, there is, as formerly mentioned, much nausea or vomiting—the face is pallid, the skin is cold and in some degree collapsed, the pulse is weak and diminutive, and the respiration comparatively little disturbed. The case, in short, resembles in its general aspect, syncope. But these distinctions do not always hold. Brought on by repletion of stomach, or by the action of narcotic poisons, the case is generally so imitative in all respects of primary cerebral apoplexy, that it is perhaps impossible to institute any satisfactory diagnosis.

In relation to the prognosis, the difficulty is much greater, and at all times, more or less uncertain. It is obvious, that when the disease originates in the stomach, the prospect of recovery is infinitely better, than if primarily seated in the brain, though even the former cases very often terminate fatally. The degree of danger in the cerebral form of the complaint, must obviously depend on the state of the organ, whether there be merely vascular congestion, or extravasations from rupture of vessels, or otherwise,—or effusions from pre-existing irritation or inflammation, or some of those derangements of structure formerly noticed. In making up our decision, therefore, it is necessary to connect with the existing symptoms, a complete review of the history of the case, in reference to its probable causes.

It is a common opinion, sanctioned in some measure by medical authority, that recoveries never take place, in the cases proceeding from the lesion of vessels.* This is not true.† Whether the extravasated blood is ever absorbed, or otherwise removed, is disputed. The negative side in this discussion, is assumed by Sir Astley Cooper, who believes from extensive dissection, that instead of the blood being taken up, the brain gradually acquires the power of sustaining its pressure, and in this way relief is afforded.‡ But the late French pathologists maintain the contrary, and show a very curious process, which nature employs in this emer-

* Cooke, p. 273.

† *Ib.* p. 274.‡ *Ib.* p. 275.

gency. This has escaped the attention of our learned author, or at least he does not notice it. By the dissections of Rochoux and Riobé, it appears, that around the clot of extravasated blood, a sac is formed, probably of coagulable lymph, which secretes a serous fluid, that dissolves and liquifies the coagulum, rendering it easy of absorption, in which way it is sometimes ultimately removed, together with the cyst, and cures effected. These sacs are described both by Morgagni and Wepfer, though apparently without any distinct knowledge of their mode of origin, or use.

Generally, in its more vehement shapes, however induced, apoplexy is to be considered as a most formidable and fatal disease, though in no instance, should it be abandoned as hopeless.

In estimating the danger, much attention has always been directed to the state of the respiration. Being slow, heavy, stertorous, with foaming of the mouth, it is highly alarming. The pulse is also a guide. It is very unfavourable where it is weak, or exceedingly slow, and irregular or intermittent, and especially if it do not rise and otherwise improve, after venesection. The coming on of fever in the advanced stage is bad, as indicative of inflammation, and rigors or chilliness still worse, as evidence of suppuration. Not a little may be learnt from the countenance. It is bad when pallid, and either dilated or contracted pupils, especially the latter, are very unfavourable. Cold surface, with profuse perspiration, is one of the most fatal signs. Great disorder of the nervous and muscular systems, denote danger, and where it amounts to convulsions, particularly of one side, recoveries are very rare. It is said likewise, to be very unfavourable, when the patient unmeaningly places his hand on his head.

Among the favourable indications, are the red face, a quick uninterrupted circulation, with a general and warm perspiration, and comparatively easy respiration, bleeding from the nose, or the coming on of the hæmorrhoidal, or menstrual discharge, or a spontaneous salivation, or freedom of evacuation from the bowels and kidneys. Cases also

prove commonly more curable, which are preceded by certain premonitory signs, as they are oftener owing to congestion, than extravasations from the rupture of vessels, &c. It is further said, that they are less dangerous, when occurring after middle life, and are particularly fatal in children. Whether this be a fact, our own experience does not enable us to state, though we doubt it, as it is in contradiction to all analogy.

In the treatment of apoplexy, we have, from its peculiarly urgent nature, to attend in the first place to the relief of the paroxysm, and without any particular reference to the cause inducing it, the ensuing measures are to be adopted.

The patient should be put in a posture which least favours a determination of blood to the head, and all ligatures, as the cravat, garters, with the shoes or boots, which occasion some compression, must be removed. An exposure to fresh air is of much importance, and with this view, the windows are to be thrown open, and all unnecessary persons to be excluded from the room.

After these preparatory steps, we resort to the several means of depletion, among which, the leading and most efficient is venesection. Excepting Fothergill and Heberden, who entertained some peculiar notions relative to its pathology, nearly the whole weight of authority is in favour of large detractions of blood in this stage of apoplexy. To what extent the lancet is to be carried, must of course depend on the circumstances of the case, such as the vigour of constitution, fulness of the system, the activity of pulse, &c. As a general rule, thirty or forty ounces may be taken, though much more is sometimes demanded. Ninety-six ounces were on one occasion drawn away at once by Dr. Physick, and with complete success. The operation when limited, requires often to be repeated, and in many instances, eight or ten pounds are lost in a few days.* The efficacy of the

* It seems to be admitted, that the suddenness with which the blood is drawn off, has a considerable influence on the result of the operation, and hence it is not uncommon to open a vein in each arm. But it sometimes

bleeding will depend much on the nature of the case. If it proceed merely from congestion, the relief is nearly always prompt and decisive. Caused, however, by extravasations of blood, it is less so, as might be expected. Yet even here it is useful, by checking, as in other hemorrhages, the further flow of blood, obviating inflammation, as well as repetitions of attacks. What it does in hemoptysis, it partly accomplishes in this case.

The general, may be aided much by topical bleeding, though it is a secondary and subordinate measure. Either leeches or cups are here usually adopted, and sometimes both together, or in succession. But the opening of the temporal artery, or the jugular vein, is also practiced, and it has even been proposed to open the superior longitudinal sinus of the brain. This proposition comes from M. Dejean, professor of medicine at Caen, who had tried it with success on dogs strangled. It is, however, objected to by Portal, as less effectual than opening the jugular vein, and also from our having no means of stopping a hemorrhage thus induced.*

Next we are to attend to the evacuation of the alimentary canal, and here much controversy has been maintained as to the choice of means, whether by puking or purging. It seems to us, that this is a point of practice easily to be settled, and that the one or the other mode is to be preferred according to the nature of the case. Caused by a loaded stomach, emetics are obviously demanded, and equally proper are they, when the disease is induced by narcotics, and probably also where the nervous system is chiefly affected, constituting a case essentially different from sanguineous apoplexy, which, in many of its features, resembles the state of concussion, a general torpor of the nerves and brain, without congestion or extravasation, by which all

happens, that the system is so completely stunned, by the compression of the brain, that the circulation is exceedingly feeble, and here blood must be cautiously detracted.

* Cooke, p. 306.

action is suspended.* Emetics are particularly recommended by Sydenham, Fothergill, Pitcairne, Kirkland, and Selle. Cullen, however, with most modern writers, oppose their use.

Commonly, purgatives are infinitely more appropriate, and should be of the most active character, as calomel and its ordinary adjuncts, to be worked off by senna tea, the most certain of this class of articles, or the elaterium or croton oil. The purgative is to be given as soon as the bleeding is performed, or the patient is able to swallow, and repeated daily, till the desired effect is attained. Its action may be promoted by stimulating enemata, and, where inability to swallow exists, should be always substituted for cathartics. Continued evacuations from the bowels, of the most powerful kind, are assuredly one of the most important processes in the cure of this disease.

This is the treatment of the first stage of apoplexy. As the case advances, or the depletory measures have been carried to the full extent without relief, symptoms of debility supervene, and a change of remedies is demanded. It has often been made a question, how far it is proper to resort, under such circumstances, to the diffusible stimuli, or the cordial, volatile, nervine, and antispasmodic medicines. The ancients were fond of the practice, and in which they have been imitated by many modern physicians. It is, however, more to be found among the French practitioners, who even pour down considerable quantities of spirituous liquors, though the volatile alkali is the more favourite remedy. Considering apoplexy, for the most part, as originating in the stomach, they manage it accordingly, trusting mainly to emetics, in the first instance, and then to such articles as are best calculated to excite and arouse the energies of this viscus.

In deciding on the propriety of the course, we must be guided, as before stated, by the estimate which we may form of the character of the case. Being of gastric origin,

* Cooke, p. 321.

this practice, duly limited, will be found correct, and we have often pursued it advantageously. But to *sanguineous* apoplexy it is utterly inappropriate, and, we should suppose, could never be adopted, without manifest, and, perhaps, irreparable mischief. In this latter form of the disease, there is at this conjuncture, either an absolute sinking, which nothing can avert, or an imperfect reaction, attended by more or less febrile movement. In the latter state we still continue the use of the antiphlogistic measures, and particularly the antimonials, in small doses. These may be aided by blisters, though where shall they be applied? Cullen, and most writers, recommend them to the head, while others prefer the back of the neck, reserving the scalp for cold applications,—and several of the distinguished French practitioners insist on their superior efficacy when put on the extremities, acting as revellents. The fact is, that each and the whole may be adopted in the progress of a case, commencing with cold to the scalp, and a blister on the neck, then on the head, and finally to the ancles and wrists.

Every other means failing, we are to try a salivation. This we do not perceive, has been recommended by any of the foreign writers, which is the more surprising, as they are very liberal in the use of mercury, in the states of hydrocephalus closely approaching, in several particulars, to apoplexy. But the practice is familiar to us, and sometimes we have found it productive of the most interesting results. The cases to which it is chiefly applicable are such as remain, for a length of time, without any very sensible change, assuming in some degree a chronic condition, probably owing to extravasations or organic lesions. To be effectual, the mercury is to be given internally, as well as applied externally, in the shape of frictions, and the surface of the blisters to be dressed with the mercurial ointment.

As regards the treatment of apoplexy, we have nothing more to say. But as it is a disease, very liable to a recurrence, the prophylactic measures should be well understood—and we shall therefore make some few remarks on the sub-

ject. It is right, in the first place, that the causes exciting the disease should be carefully avoided. These were formerly enumerated, and need not again be recapitulated in detail. The strictest attention in eating and drinking is to be observed, excluding every article that is indigestible, or which may prove, by its quality or quantity, oppressive to the stomach, or heating or stimulating to the system.

Exercise in moderation is also important, and should be taken regularly, at stated intervals—and habits sedentary and studious, with any undue watchfulness, or reversely, an indulgence in too much sleep, be abandoned or corrected. The mind is, moreover, to be preserved free from care and anxiety, and above all, from the agitation of vehement passions.

Great attention must be paid to the bowels, never permitting the slightest constipation; and where any eruption, especially about the head, or a discharge like the piles, has been suppressed, we should endeavour to restore it. These, however, may be compensated, in part, by establishing artificial drains by setons, issues, or perpetual blisters, and under all circumstances of a strong predisposition, must not be neglected.

It is likewise of consequence to regulate the dress. This is to be such as to protect against cold, and particularly the feet, which last may be done by wearing worsted socks, with some stimulating application to the soles of the feet. Exposures to heat are also to be guarded against, and especially to the sun.

An attack of apoplexy, is often preceded by certain signs, as a dull or acute pain in the head, with vertigo and drowsiness, tinnitus aurium, flushed countenance, disorder of vision or hearing, faltering of speech, or using one word for another, temporary loss of memory, deep inspirations, sleep disturbed by unpleasant dreams, or fits of incubus, cramps of the stomach, and flatulence, numbness of the fingers, a slight paralysis of the muscles of the face, with a full irregular pulse.

The preventive treatment consists in copious bleeding, active purging, and blisters to the extremities, as revelents—with low diet, a state of repose, and whatever else is fitted to reduce vascular action, and to restore a just equilibrium in the distribution of the blood.

With regard to “hydrocephalica, or water in the head,” the second topic discussed by our author, we shall at present say nothing. It is slightly touched by him, and we shall on a subsequent occasion, in reviewing the interesting treatises of Coindet and Yeates on this disease, notice whatever in his work may be deemed deserving of attention. We have already lengthened out sufficiently this article, and must bring it to a close.

MEDICAL AND PHILOSOPHICAL INTELLIGENCE.

ANATOMY AND PHYSIOLOGY.

Repetition of one of the supposed conclusive Experiments of John Hunter, to determine the Question of the Organs of Absorption.—It is one of the numerous instances of the indolence, or indifference to truth, or perhaps, on the present occasion, of the prejudice of mankind, that no Englishman has been urged to repeat the very frequently quoted experiment, by which the great John Hunter has been generally believed to have decided the question of the organs of absorption, although *Magendie*, confessedly one of the most expert operators in physiology, has often, during the course of many past years, publicly exhibited experiments, demonstrating results quite opposite to those of our illustrious countryman. The celebrated French physiologist has reported, and, at public lectures, performed scores of experiments on live animals, showing that injections do not immediately pass into the lacteals from the intestines, or from cavities into the lymphatic veins, but that they directly pass into the red veins. In the instance of the absorption of chyle only, according to *Magendie*, is there any evidence of absorption by open mouths of vessels called lacteals, originating in cavities; and here the lacteals perform *absorption of chyle only*. Their function is confined to this fluid. Whatever other fluids are presented, they are all excluded by the lacteals, but are found in the blood of the contiguous red veins. Accordingly musk, assafoetida, indigo, saffron, &c. were found in the venous blood, but not a particle in the lacteals, lymphatics, or thoracic duct. On the other hand, more than forty years ago, in the presence of professional men, similar experiments were performed by *Hunter*, showing, as was believed, that these, and other strong smelling and coloured substances, were absorbed by the lacteals, and totally excluded from the red veins. *Magendie* has very reasonably accounted for the failure of venous absorption in *Hunter's* experiments, but he has not accounted for the supposed taking place of lacteal absorption by this experimenter. The subject is at issue of further trials. At length a very able anatomical teacher, in the presence of an Englishman, one of Ma-

gendie's pupils, has lately repeated the experiment on a live dog, with an injection of indigo and starch, into a tied up portion of the gut. As this trial will be repeated and detailed more minutely and accurately, probably by the operator, no more will be said at present, than that it was in favour of Magendie, as none of the coloured fluid entered the lacteals; but an optical deception was discovered, which may probably assist, if not explain, the report of Hunter.—*Edin. Med. & Surg. Journal.*

Effects of the Section of the Pneumo-gastric Nerve.—M. Dupuy read a series of experiments relating to this subject, which he had made on the horse and sheep. These experiments were repeated by M. Béclard on the dog; and the following are his deductions:—

1st. If we cut the pneumo-gastric nerves of both sides at the same time, the animal dies soon afterwards. 2dly. If we cut them only on one side, life is not affected, and the animal is but little incommoded by the section. 3dly. If, after having divided them on one side, we wait some days and then divide the other, the animal lives a longer or shorter period, in proportion to the greater or less distance of time which is allowed to elapse prior to the second section; and, at the end of a certain time, he lives after the second experiment as if one section only had been made. 4thly. If, at this last period, he divide both nerves, the animal dies, as in the first experiment.

M. Béclard deduces from these facts, that, at the end of a certain period, cicatrization takes place between the two extremities of the nerve, so as to completely restore its functions.—*Académie Royale de Médecine of Paris, July Meeting.*

Experiments on the Cerebellum and Cerebrum.—1st. M. Flourens removed the cerebellum in successive layers from a pigeon. At the taking away of the first slice, the animal experienced but little weakness and hesitation in its motions. At the middle layers, its walk became unsteady and agitated, altogether like that of a drunken person; soon it could not walk without the assistance of its wings. The sections being continued, the animal lost altogether the faculty of walking: its feet were no longer sufficient to support it, and it had to sustain itself on its tail and wings: it often attempted to walk or fly, but always without success. If it was pushed forward, it tumbled over its head; if backwards, it rolled on its tail. The sections were carried farther: the animal then lost the faculty of keeping itself up on its wings and its tail; it tumbled continually, without being able to stop in any fixed position, or it finally rested flat on its back or belly. In other respects, it saw and heard very well; its air was lively, its head erect, and spirited.

2d. M. Flourens removed from a pigeon the right cerebral lobe: the animal lost instantly the sight of the left eye; but the contractility of the iris of that eye continued unchanged. There was also a marked feebleness in the right side of its body. With the exception of these two circumstances, the animal was well: it sustained itself, walked, ran, flew, saw with the other eye, understood, wished, felt as usual. The other lobe being removed, the sight of both eyes was instantly lost, but not the contractility of the iris. There was at first a very distinct general debility: otherwise, the animal held itself perfectly upright on its feet; and, in whatever position they put it, it maintained its equilibrium. It walked, when pushed; it flew, when tossed into the air; but, left to itself, it remained plunged as it were in a continual stupor. It never moved, except in proportion as it was irritated; it gave no sign of volition. Memory, vision, hearing, will, all its perceptions, were extinguished. There is none of his numerous experiments which M. Flourens has not repeated on each of the four classes of vertebrated animals; and he has always indicated the shades of greater or less depth which characterize these classes.—*Journal of Science.*

SURGERY.

Obstinate Venereal Ulcer, tending to Cancer, cured by the Occurrence of Inflammation.—The patient, in this case, was of low stature, strong, and very irritable. He had been affected about six years with an ulcer on the left side of the glans, a mucopurulent discharge from the urethra, and pains in the limbs. He had repeatedly undergone mercurial treatment without success, partly from its being ill-directed, and partly from his own want of attention. He was recommended to undergo a course of mercurial frictions, during which, hernia humoralis occurred, and was removed by antiphlogistic treatment. Tired of the remedy, he soon suspended the frictions, the pains having ceased, and the ulcer, though somewhat improved, being far from cured. For about a year, under the direction of another Professor, he employed fumigations of cinnabar and sublimate. These seemed at first to diminish the callosity; but the hopes thus raised soon vanished. Quite worn out, he again applied to M. Fenaglio. The appearance of the ulcer had considerably changed; its size was much increased, with fistulæ, and an ichorous discharge; there were some fungosities, so hard and painful as to excite a suspicion of a cancerous disposition. The relator tried another mercurial course, which was not followed by any accidents, the disease, however, remaining nearly in the same state, excepting that the discharge ceased, and a thin ci-

catrix took place, but without any diminution of the original induration. He advised the patient to avoid stimulant applications, and looked forward to the necessity of extirpation at a future period. Things remained thus for some months; the tumour occasionally ulcerating, and discharging sanies. At the end of this time, the patient despairing of a cure, exerted himself violently in hunting, at the same time eating and drinking to excess. The consequence was, a very violent and painful inflammation of the diseased parts, which, by its termination in a fortnight, by healthy suppuration, removed, at once, all the disease and the author's fears of a cancerous diathesis, which, he confesses, was most probably the result of the mercurial treatment.—*Quarterly Journal of Foreign Medicine and Surgery.*

*M. Birago on Leeches applied to the Anus.**—The first part of this little work is composed of a precise description of the arteries and veins distributed on the intestines, and from their communications a deduction is drawn of the good effects of leeches applied to the anus, not only in hernia, but also in the inflammations of the abdomen, as hepatitis, enteritis, nephritis, matritis, &c. In the treatment of these, if the horizontal position, with cautious attempts at reduction, be not sufficient, M. Birago recommends the adoption of the antiphlogistic plan, particularly the application of many leeches to the anus, with the expectation of diminishing the state of irritation and turgescence in the strangulated intestine, through the medium of the free communication existing between the hemorrhoidal and other intestinal vessels. He directs the nates to be considerably raised, the thighs and legs to be bent and separated, for two reasons: because this position renders the application of the leeches more easy; and because it facilitates the return of the hernia. If the symptoms increase rapidly, it is necessary to have recourse to this operation repeatedly, with the addition of general blood-letting, if the patient be robust. In many of the cases, this plan contributed, either with or without the taxis, to the return of the strangulated parts, and those in which the violence of the symptoms rendered an operation necessary, were, in some degree, relieved; whilst the application of leeches to the anus was afterwards employed, with the greatest success, to moderate the enteritis resulting from the operation.

Leeches applied to the anus, are also recommended in trau-

* *Compendio di Osservazioni cliniche sub. vantaggio delle mignatte applicate all'ano nelle ernie incarcerate, e sulla potassa caustica applicata in diverse malattie de carattere linfatico; del Dr. C. Birago, chirurgo primario dello spedale maggiore di Milano, &c. Milano, 1822.*

matic paraplegia, that species depending on falls, blows, &c. upon the sacrum, and their utility demonstrated by anatomy, that is, by the communications of the hemorrhoidal vessels with those of the lower part of the spinal marrow, which, in such cases, is inflamed and loaded with blood. Some practical observations are added, of such cases as were cured by this means, in which the warm bath was employed to encourage the flow of blood; gentle purgatives, and the permanent retention of a catheter in the bladder, to discharge the urine.

The second part relates to the beneficial effects of the caustic potash in scrofulous diseases. The author's professed object in its application, is to excite the vitality of the lymphatics, which he thinks principally concerned in such affections. He relates fifteen cases of scrofulous abscesses successfully treated in the manner he recommends. He also shows the advantages of the caustic potash in some other lymphatic affections, particularly of the scrotum, testes, and uterus. To reduce a slow, lymphatic disease, when arrived at the stage of inflammation, and to obtain suppuration, with a removal of obstructions and effusions, he asserts that nothing is more proper than to apply a permanent stimulus which may excite the surrounding parts, and such, according to him, is the action of the potash. Its utility he thinks particularly great in the diseases of the testicles and scrotum, from the liberal manner in which those parts are supplied with absorbents. Several cases, in proof, are given of cures of sarcocele, arising from different causes, as also a case of hydro-bronchocele, successfully treated in this way, notwithstanding the occurrence of hemorrhage on the separation of the eschars. The author extends the use of the potash to some diseases of the uterus, particularly obstructions and indurations of the body and cervix uteri, which have a tendency to scirrhus. In these cases he recommends the applications to be made to the groins, that is, to the terminations of the round ligaments, where the blood vessels and absorbents of the external parts communicate freely with those of the uterus. In conjunction with such means, mercurial frictions on the thighs may be advantageously employed. The treatise is terminated by the relation of some cases in which the caustic potash proved successful in the treatment of metastases of scrofulous diseases to different organs.—*Quarterly Journal of Foreign Medicine and Surgery.*

On the temporary ligature for Aneurism.—Dr. Wattmann, professor of clinical surgery at Innsbruck, has successfully employed the temporary ligature. The patient was 36, strong, and of good constitution. The aneurism, a popliteal one, first appeared after vomiting from an emetic, and was rendered worse

by a recurrence of the same circumstances. Besides the tumour in the ham, a second appeared three inches above it, on the inner side of the knee. When the professor first saw the patient, the tumour at the inside of the knee was circumscribed, reddish, six inches long, and four wide. Its pulsations were perceptible both by sight and feeling. Below this one, and in the cavity of the ham, was another of smaller size, also pulsating, but not discoloured. The pulsation in both ceased on the compression of the femoral artery.

The patient being placed on a table, the femoral artery was compressed by a tourniquet, where it passes into the thigh. An incision, three inches long, was made in the course of the femoral vessels, the artery was exposed and separated from the vein for three lines; it was then raised by the forceps, and a double ligature six threads thick passed under it; the ligature was divided, one portion was tied round the artery, a roll of plaster being interposed, and the other was retained as a ligature of reserve. The edges of the wound were brought together, a long compress placed in the course of the femoral vessels, to moderate the impulse of the circulation on the ligature, and the limb was bandaged from the toes to the groin. Cold water was applied to the wound for forty-eight hours, and the patient kept low. The limb retained its temperature. In the course of the day the pulse was quickened, and towards evening there was some fever. On the second day the patient complained of burning heat in the wound. The cold applications were then gradually changed, first to tepid, and then to warm ones, according to the practice of Professor Kern, of Vienna, who employs these means in recent wounds, particularly after amputation. (*See Quart. Journ. of Foreign Medicine and Surgery*, vol. i. p. 173). On the fourth day the wound was examined, the ligature cut, and the cylinder removed. The ligature was allowed to remain until the following day, and that of reserve until the 8th. The case from this time proceeded well, and the patient rapidly recovered. Putting the temporary ligature out of the question, we may remark that some of the practice here adopted by M. Wattmann was very objectionable, namely the tourniquet, the ligature of reserve, the long compress, and the bandage.—
EDITOR.

The second case is contained in a letter from Professor Fritz, of the University of Prague, to Professor Hildenbrand, of the University of Pavia. The operation was performed November 30, 1819, on the patient, a butcher, aged 40, and according to the method of Scarpa. On the application of the ligature the pulsation ceased and never returned. The ligature was removed on the fourth day without hemorrhage; the wound healed rea-

dily, and the man soon recovered.—*Quarterly Journal of Foreign Medicine and Surgery.*

Sur l'Emploi, &c.—On the Employment of Electricity as a Remedy in Concussions of the Brain.—M. Gondret during a residence in the Ukraine in 1819, met with a fatal case of concussion of the brain, from a fall and contusion on the head, in which he regretted that he had not a voltaic apparatus within his reach, as it appeared to him that the electric fluid might have reanimated the individual, in a case where life was merely suspended by the concussion. He resolved, therefore, at a favourable opportunity, to institute some experiments on animals, with the view of determining how far electricity might be serviceable in similar cases. Accordingly, on his return to Paris, he made some experiments, which are here detailed, with their results:—

In the first experiment, he laid hold of a young female rabbit by the hind legs, and gave it two or three blows on the occiput with the palm of the hand. The animal uttered a cry, made some convulsive motions, fell into a state of coma, and exhibited no signs of life, except a slow and convulsive respiration. In this state, nearly approaching to that of death, he established, by means of a galvanic trough of thirty plates, an electric current between the occiput and the different points of the vertebral column. Sudden contractions were immediately produced, but which ceased when the action of the galvanic apparatus was suspended, the animal relapsing into its former state of apparent death, with its eyes dull and immoveable. After waiting for two hours the effect of this proceeding, without any success, he passed the electric stream between the nose, eyes, and auditory canal on one part, and the whole length of the spine on the other, when a general movement very soon began to take place, and the animal made some attempts to walk; and a continuance of this process for half an hour longer, was sufficient to recal it to life. In three hours more the animal eat heartily, and appeared to be quite well. The right eye, which had been principally engaged in the experiment, remained inflamed for three weeks, but recovered its power.

The second experiment was performed on a much stronger female rabbit, and the blows were inflicted with greater force, and, from the violence of the shocks, and the effects which resulted, the countryman who brought the animal conceived it quite impossible to restore it to life, as he was in the habit of killing rabbits for the market with much less violent treatment. The electric stream was kept up in the above manner during four hours, with the effect of exciting only slight convulsive movements, which gradually became more and more feeble. M. Gondret almost despaired of success, when he considered that

the epidermis was capable of presenting an obstacle to the free transmission of the electric fluid through the organs; he therefore produced a vesication in the space of a few minutes along the course of the vertebral column, by means of ammoniacal paste. The animal exhibited no signs of sensibility during the action of this topic, but as soon as the electric stream was re-established between the eye, nose, auditory canal, and the surface which had been abraded, rapid and general motions of progression and elevation took place. The animal soon raised itself on its fore feet, the posterior extremities not having yet recovered the power of motion. At the expiration of an hour the ears were erected, and the respiration became more frequent; and in this condition the animal was left to itself, the experiment being discontinued, and in the evening it took some food. The posterior parts of the body remained in a paralysed state for three or four days, probably in consequence of the lumbar region having suffered a degree of compression during the first part of the experiment. The right eye, which was at first inflamed, remained in a state of atrophy, and deprived of vision, and the animal did not seem quite well till eight days afterwards.

Both the subjects of the above experiments have since brought forth one or two litters.

The author concludes by suggesting that, provided these experiments are repeated with the same success, it might be advantageous to employ the electric fluid in recent cases of cerebral concussions, and in asphyxia, in combination with other therapeutic agents. The epidermis which covers the face in man, will, on account of its extreme fineness, readily transmit the electric influence, and, consequently, there will be no occasion to engage the eyes, as was done in the above experiments, and it will be no difficult matter to produce a speedy vesication on the trunk or extremities, to allow the electric fluid to pass through these parts.

Magendie adds, that he performed several experiments in conjunction with MM. Pouillet and Roulin, which correspond exactly with those related by M. Gondret. They found that the voltaic influence was capable of reanimating an animal, which had been immersed under water for more than a quarter of an hour, and which had exhibited no signs of life. But a considerable perseverance was required, for the first return of respiration did not in some instances manifest itself till after half an hour or three quarters of an hour's action of the pile; and from the whole results, he thinks it would be of importance that a powerful galvanic trough should be introduced amongst the means usually supplied by government for the recovery of drowned or asphyxiated persons.—*Medical Intelligence.*

On a new mode for the Cure of Prolapsus Ani.—M. Dupuytren having frequently had occasion to remark the inefficacy of most of the plans adopted for the cure of persons labouring under prolapsus ani, hit upon a mode of cure which he considers as one of the most important inventions in surgery of which he has been the author. This simple operation consists merely “in cutting off a greater or less number of the cutaneous and projecting folds of the verge of the anus: the operation contracts the opening, by drawing it together almost in the same manner as occurs in a purse when the strings are drawn tight.” The number of folds which M. Dupuytren removes is proportioned to the size of the protruded intestine, and the dilatation of the anus. Ten or twelve patients have been treated by this method, and all have been cured without any unpleasant symptom or relapse.

Should an artery be opened during the operation, M. Dupuytren immediately cauterizes it. No dressing is required, attention to cleanliness being commonly sufficient to produce the cicatrization of the wounds, and the complete cure of the patients, in less than twelve or fifteen days.—*Journal Universel des Sciences Médicales, Octobre, 1822.*



THEORY AND PRACTICE OF MEDICINE AND MATERIA MEDICA.

Matter of Farcy and Glanders' identical Contagion, and producing similar Contagious Matter in the Human Subject by Inoculation.—Several cases have been mentioned in the foreign Journals, showing the connexion between the diseases of farcy and glanders in horses, and a disease produced by the matter of them in the human body; but the accounts were neither well authenticated, nor detailed in a satisfactory manner. In London, some years ago, a veterinary surgeon contracted a disease from a farcy horse, with ulceration in the part of the arm infected, and what are called farcy buds extending up the limb. Of this disease he was supposed have nearly recovered, but relapsing, he soon afterwards died. Lately, a patient offered himself at one of our hospitals with a sore arm, as he said, from a wound, and the touching the leg of a farcied horse. This man is still here ill, but I do not know the particular state of his health. From the matter of his ulcerated arm an ass was inoculated in the leg. The effect was a diseased leg, supposed to be the farcy; for, in some days further, symptoms of glanders appeared, of which disease the animal died. On dissection, among other effects, was ulceration of the septum narium, as in other cases of that disease.—*Edinburgh Medical and Surgical Journal.*

Affection of the Hair in Gout.—A man, about fifty years old, suffered frequently from gout in the head, which occasioned violent pain. Whenever he had an attack his hair began to curl, and to become entangled, so that often in one night, from hanging down straight, it drew itself into a complicated wreathy mass, from which state no combing could again bring it into order. But as soon as the paroxysm of gout subsided, the hair begun to lose this twisting disposition, and could be easily extricated. What is remarkable, it did not afterwards fall off. May not some important conclusions be derived from this on the physiology of hair, and on its powers of life? and may it not throw some light on the plica Polonica, which is well known to be frequently preceded by gouty pains.—*Hufeland's Journal.*

Case of Morbid Sensibility of the Hair, by Baron Larrey.—In the hospital of the Royal Guards at Paris, was a private soldier, who had received a violent kick on the occiput from a horse. The cerebral excitement produced was extreme, and could only be kept under by almost innumerable bleedings, both general and local. Amongst a series of phenomena produced by this state of preternatural excitation, the sensibility acquired by the hair was not the least remarkable. The slightest touching the hair, was immediately felt, and cutting it gave exquisite pain, so that the patient would seldom allow any one to come near his head. When dressing his wounds, Baron Larrey, to show that this was not merely a pretence of the patient, gave a hint to one of the assistants to clip one of the hairs. This, as he was standing behind him, he did unperceived, and that moment, the soldier broke out into a volley of oaths, and afterwards of complaint, and it was some time before he was appeased. We have not heard what became of the case.—*Quart. Jour. of For. Med. and Surg.*

On the Use of Music in Chorea.—Louisa Milani della Mulina, in the commune of Stazzema, aged seventeen, slight, and not regular, was attacked, in December, 1820, with remittent fever, accompanied by pains in the epigastrium, and sopor, occasionally interrupted for a few moments, during which she could not speak. She was relieved by a purgative, and the fever gradually diminished. On the thirteenth day, Dr. Papini was suddenly called to his patient. He found her in a state of lipothymia, the pulse hard, slow, and intermittent; the face pale, though flushed occasionally. At this moment the parish clock struck; she seemed to discern it, moving, at the same time, the right thumb and the left great toe. Dr. Papini ordered a tambourine to be sounded, and the patient accompanied it by a general motion of the body. He sent for a violin and clarionet, and no sooner

were they sounded than the patient leaped from bed, and danced with her eyes shut. The music was continued, and in the evening the spectators were surprised to see that a widow, sister to the patient, 40 years of age, and mother of eight children, had joined her. On serious consideration, the relator ordered the music to be discontinued, seeing that it tended to make the disease contagious. The parents assented, and discharged the musicians; but these, consulting their own interest, flattered them with the prospect of a cure by continuing the performance. The dancers joined in these entreaties, and the music was resumed: the result was, that after two days and nights' exertion, the patients became tired, and declared themselves relieved. Dr. Papini pretended ignorance of the censures directed against himself, and waited the event. In thirteen days he was again consulted, both patients having relapsed. He repeated his visit, and found them in a state of debility, and the legs of the widow œdematous. He gave both of them bark and valerian for eight days; afterwards, valerian and opium, without success. They refused to use the cold bath, and he gave up the treatment. At the end of a month they wished either to be allowed music, as before, or to be treated by medicine. Dr. Papini adopted the latter plan, and began with opium and valerian, increasing the doses. At the end of eight days, the widow surprised him by saying that she was much improved, whilst the sister remained in the same state. He learned subsequently the cause of this change, by finding that the widow was about to be married to a young man.

The younger sister became regular; but though her susceptibility to music was lessened, the face remained pale, the pulse irregular, with oppression at the heart; there was occasional leucorrhœa, with pain in the hypogastrium, a relaxed state, and some symptoms of dyspepsia.—*Quarterly Journal of Foreign Medicine and Surgery.*

Limitation of Emetics.—Dr. Sutton, of Greenwich, has written a short paper in the November number of the *Medical Repository*, to show that where we wish to limit the operation of emetics to the stomach, and prevent their action on the bowels, we should add five or six drops of laudanum to the emetic draught, which, in his experience, has answered the purpose in question.—*Medico-Chirurgical Review.*

Use of large doses of Tartar Emetic in Pneumonia, Hydrocephalus, &c. &c.—M. Leveillé read a report upon a paper by Dr. Arnaud, of Moulins, in which he relates a great number of cases of peripneumonia and pleuritis, which were cured by the tartar emetic, without having recourse to blood-letting. In sup-

port of this observation, M. Laennec communicated some cases of hydrocephalus acutus and pulmonary affections, in which he administered twelve grains and more of emetic tartar during the day, with the greatest success. This latter author made several comparative experiments upon an equal number of cases of peripneumonia, of nearly the same intensity; from which he is convinced, that in those treated solely by bleeding, either local or general, the pulmonary engorgement, discoverable by the *stethoscope*, continued for a very long time; whilst, under the administration of the tartar emetic at a high dose, the engorgement disappeared at the end of a few days. M. Laennec considers that the stibiated tartar, given in this manner, acts specifically and powerfully promotes absorption.—*Académie Royale de Médecine of Paris, July Meeting.*

The Flowers of Colchicum recommended.—From experiments which we are now making with colchicum flowers, we are inclined to conclude, that they furnish the most efficacious and the mildest preparations of this plant. Mr. Frost, who had the goodness to draw our attention to the subject, kindly furnished us with the recent and dried flowers, and with a tincture, a wine, and a vinegar, prepared from them. From the experiments which have been already made, we have concluded, that the “Eau Médicinale” is nothing else than a tincture prepared from the recent flowers. We hope soon to place some interesting matter before our readers on the subject.—*London Medical Repository.*

On the Use of the Preparations of Gold. By Professor LALLEMAND, of Montpellier.—This physician has recently published an essay on the employment of preparations of gold in medicine. He has obtained very speedy and permanent success from the muriate of gold and soda in several individuals affected with inveterate syphilitic complaints, where mercurials had failed. M. L. prefers the salt of gold to mercury, in all those cases where a first mercurial course has been unsuccessful, and *à fortiori*, after a second and third: he has likewise employed it successfully in recent affections. M. L. recommends it to be rubbed upon the gums, tongue, or inside the cheeks. The dose is, at first, a fifteenth or sixteenth of a grain, which may be gradually increased to a fourteenth, twelfth, &c. to a sixth of a grain. Seven or eight grains are commonly sufficient. During the use of the remedy, no remarkable morbid change occurs in the state of the health: the gums are not affected by it, and the external characters of the disease quickly disappear.—*Nouveau Journal de Médecine, Octobre, 1822; and Journal Universel, Août, 1822.*

On the Use of Belladonna in Diseases of the Eyes. By NINIAN HILL, M. D.—I beg leave to inclose the case of a young lady, showing the happy effects obtained by the application of belladonna in some diseases of the eye,—a fact not generally known to the public, but of which charlatans successfully avail themselves. From what I have seen and can learn, the itinerant oculist, Mr. Williams, uses the belladonna indiscriminately. The particular effect to which I allude, is very striking in the case of a young lady, with capsulo-lenticular cataract in both eyes, the consequence of an attack of purulent ophthalmia in infancy. The margin of both lenses is nearly transparent, that of the left eye more so than that of the right, for it is by the left only the form of objects is ascertained, while the right is merely sensible of light. The eye-balls have the quick tremulous motion peculiar to congenital cases of cataract. By the aid of very convex glasses, and a shaded light, she with great difficulty was taught to read. The books and other objects were carried close to the eyes, as in myopic patients. When a distant object was to be looked at, she was enabled to have some idea of its form by arching her hands over the eyebrows. She has now used the belladonna for eight years, and is disposed to think that it strengthens her sight, and that its powers have rather increased. But this I attribute to her having acquired greater dexterity in the application. She applies the solution of the extract four times a day, at each time dropping two drops from a quill upon the ball of the eye; and its effect commences in half an hour from its application. The tremulous motion, I observe, returns, as soon as the influence of the narcotic subsides; and she now depends so much upon it, that she never leaves her bedroom till the pupil is dilated. When I first saw this lady, I applied the belladonna with the view of examining the state of the lens; the effect of which was so powerful, that she was perfectly satisfied, and declined an operation, to which I cheerfully acquiesced. In most instances, narcotics lose their power; nor is the system so susceptible of their effects after repeated use. But, in reference to belladonna, it would seem fortunately to be an exception; but of which, I must confess, I was not formerly aware.—*Edinburgh Medical and Surgical Journal.*

On the Use of Iodine.—Iodine has for some time past been frequently employed by the medical practitioners of this place, particularly among the inhabitants of a mountainous district of country, situated a few miles from Cologne, where a considerable number of cases of goitre are met with. I have, along with others, tried its medicinal effects, particularly in the cases of two sisters, the one sixteen, the other eighteen years old; the former of whom was affected with a small tumour of the bron-

chocele kind, about the size of a pigeon's egg, situated in the neighbourhood of the thyroid gland; the other had a chronic tumour, of much greater magnitude, situated on the left side of the neck: the swellings in both instances were hard, and quite free from pain. After the use of the iodine for a fortnight, considerable diminution in the size of the tumours was already observed. During that time the patients had only employed the Ungt. Hydriodin. made thus:—R. Axung. porc. ℥jss. et Kali Hydriodinicum, ℥ss. M. et fiat ungt. Of this ointment, about the size of a hazel-nut was rubbed-in on the swelling every evening; the iodine not being at all exhibited internally. At the present moment, they still continue the use of the ointment; and I do not in the slightest degree doubt but that the tumours will be discussed without leaving the smallest trace of them, since they are already of very inconsiderable size. During the employment of this application, the patients were not affected with any particular symptom, with the exception of the younger of the two, who, about the sixth day after she began the application, complained of slight pains in the tumour; but these entirely disappeared in two days afterwards, the use of the ointment remaining uninterrupted. Since then they have not returned.—*Extract of a letter from Dr. Gunther, of Cologne, to the Editor of the Medicinisch-Chirurgische Zeitung; August 1, 1822.*

On the Employment of Oil in Cases of Poisoning by Cantharides.—Dr. Pallas is of opinion, that the administration of oil in this species of poisoning is dangerous, from the property which it possesses of dissolving the active principle of the cantharides, and by this means of augmenting the danger instead of preventing it. It appears that M. Orfila has made experiments for the purpose of satisfying himself of the truth of M. Pallas's statements. Cantharides were macerated in cold oil, and the oily *maceratum* afterwards administered to dogs, all of which died in a few minutes. We observe, that in both the tables by M. de Salle, to which we had occasion to allude in our last, and in those of Mr. Stowe, oil is recommended in cases of poisoning by cantharides, and we therefore agree with him "that too much publicity cannot be given to so important a fact, in order that he may by that means prevent the fatal accidents which arise from this error."—*Journal de Pharmacie, Novembre, 1822.*

CHEMISTRY.

Test for Oxalic Acid.—In consequence of the numerous accidents which have occurred from mistaking oxalic acid for Ep-

som salts, several tests have been proposed to distinguish them. Tasting is certainly the readiest method ; but few people like to taste a reputed poison. Test papers, prepared by turmeric, or by litmus, do very well, but are not always at hand. A more ready method would be to take a little common ink in a writing pen and drop into it one or two of the crystals of the suspected salts : if it be Epsom salts, the ink will remain unchanged in colour; if it be oxalic acid, the ink will become of a light reddish brown, and no longer appear as ink, the acid dissolving the black oxide, and forming oxalate of iron. It may be remarked that oxalic acid is only poisonous when taken in doses of from half an ounce to two ounces. Small quantities of it are not deleterious. The writer of this notice, while a student of medicine, was in the habit of acidulating water with it for his common drink, and never experienced any bad effects from its use.

Black Urine.—It appears from Dr. Marcet's paper in the Medico-Chirurgical Transactions, that he has met with some cases in which black urine had been voided. At the request of Dr. Marcet, some was examined by Dr. Prout, who gives the following account of its chemical properties :

The residuum obtained from this urine by evaporation, not only does not contain any lithic acid, as was observed by Dr. Marcet, but no urea can be detected in it by the tests which indicate its presence.

Although the addition of dilute acids produced no immediate change of colour in the urine, yet, on standing for some time, a black precipitate slowly subsided, leaving the supernatant fluid transparent, and but slightly coloured.

The black precipitate thus obtained, was found to be nearly insoluble either in water or alcohol, whether hot or cold. It readily dissolved in cold concentrated sulphuric and nitric acid, forming a deep brownish black solution ; but, on diluting the acids with water, the black substance appeared to be again precipitated unaltered. These acids, however, by the assistance of heat, apparently decomposed it. The black substance readily dissolved in the fixed alkalies and in the alkaline subcarbonates, forming very dark solutions. The addition of water did not affect these solutions ; but acids reprecipitated the substance apparently unchanged. When ammonia was employed as the solvent, and the excess expelled by evaporation to dryness, a black or deep brown residuum was obtained, which appeared to be a compound of the black substance with ammonia, and possessed the following properties :

It was very soluble in water ; and, on being heated with caustic potash, it gave off the smell of ammonia. The black

compound, however, did not appear to have any tendency to assume the crystalline form.

In evaporating to dryness, on a piece of glass, the ammoniacal solution in which the black substance had been dissolved, the residuum split into most minute fragments, having a regular and very peculiar appearance, especially when examined with a magnifier.

From the solutions of this compound in water, muriate of barytes and nitrate of silver produced copious brown precipitates, as did also proto-nitrate of mercury and nitrate of lead; but oxymuriate of mercury produced no immediate precipitate, and that obtained from acetate of zinc was of a paler brown colour.

From these experiments, Dr. Prout concludes, that the remarkable specimen of urine in question, owes its black colour to a compound of a peculiar principle with ammonia, as Dr. Marcet had inferred from his own trials; but he is, moreover, inclined to think that the black principle itself, such as is obtained from the urine by the action of dilute acids, may be considered as a new body possessed of acid properties. From the small quantity of the specimen, however, which could be spared for Dr. Prout's experiments, it was impossible to obtain complete and decisive evidence on the nature of this substance; but it appears to be sufficiently characterized as a peculiar acid, and to bear a closer analogy to the lithic acid, or rather to some of the compounds which it forms when acted upon by the nitric acid, than to any other principle usually found in the urine.

Should this view of the subject be confirmed by further observations, Dr. Prout would propose to distinguish this new substance on account of its black colour, by the name of *melanic acid*.—*Annals of Phil.*

MIDWIFERY.

Stethoscope.*—M. Kergaradec has lately published a small memoir upon the Application of Auscultation to the Study of Pregnancy. By means of the *stethoscope* or *pectoriloque* of Laennec, he is of opinion, that the pulsations of the heart of the fœtus may be distinguished from those of the arteries of the mother; and that, by an attention to the different sounds communicated to the ear, we may determine, in doubtful cases, whether the fœtus in utero is alive or dead. MM. Kergaradec and Laennec are both of opinion, that the *stethoscope* and the immediate application of the ear, are attended with the same advantages; but M. Fodera considers, that although, for the purposes

* M. Kergaradec. Magendie's Journal.

of delicacy, the *stethoscope* may be sometimes preferred, yet that we may frequently be able to detect diseases by the immediate application of the ear, which we are not able to do with the *stethoscope*; and he consequently gives the preference to auscultation performed in that manner, in all cases where the *stethoscope* may be considered necessary.—*Medico-Chirurgical Review*.

*Extraction of a living Fœtus from a dead Mother.**—It but rarely falls to the lot of a surgeon to have an operation of this kind on hand.

On the 15th of April, 1820, a woman in the last month of pregnancy was run over by a stage-coach near the end of St. Thomas's Street, Southwark. She was immediately conveyed to St. Thomas's Hospital, and expired in twenty minutes after the accident. Mr. Green and Dr. Blundell, after a short consultation, agreed on the propriety of the Cæsarean section, which was performed in less than a quarter of an hour from the death of the mother. On extracting the child it exhibited no signs of life. The umbilical cord was tied and divided—a tracheal pipe introduced, and the lungs inflated. After fifteen minutes artificial respiration the child showed symptoms of returning life. The infant was then immersed in warm water, but the pulse diminished in force and frequency, and the breathing became embarrassed. It was now dipped in cold water, without any marked effect. After a time the breathing became natural, and in fifty-two minutes the child opened its eyes. It was taken by the friends to a house in the neighbourhood, and put under the care of a wet nurse. On the visit next day it was found that little nutriment had been taken—that the child had not cried—and that its breathing was embarrassed. The infant lived but thirty-four hours after emancipation from the womb of its unfortunate mother. On opening the body of the latter, it was discovered that the liver was rent through its substance by the crush of the wheels of the coach, and much blood extravasated in the abdomen.

This case, as Mr. Green observes, affords a proof that a fœtus may be recovered, if promptly extracted from the uterus, when the mother has been killed by violence—and this too, under the unfavourable circumstances of death, accompanied by a profuse hemorrhage. The case detailed is creditable to the zeal, humanity, and ability of the two distinguished practitioners concerned.—*Medico-Chirurgical Review*.

On the Fungous Excrescences which sometimes show themselves after the Falling off of the Umbilical Cord.—In those cases

* Mr. Green. Med. Chir. Trans. vol. xii.

where the fungous, conoid tumour, accompanied with a considerable discharge, which sometimes continues for a great length of time, shows itself at the navel, M. Desruelles has found the hydrarg. submurias, sprinkled over the tumour, remove it in a very short period.—*Journal Général de Médecine, Octobre, 1822.*

AMERICAN MEDICAL INTELLIGENCE.

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To the Physicians of the Western Country.

BEING engaged in composing a Treatise on the Diseases of the Western Country, the undersigned begs leave respectfully to solicit the assistance of his medical brethren. The plan of his work will admit of a notice of every disease that may have been observed to occur in this interior region; but he does not propose to give extended histories of those forms which are common to it and other portions of the United States. His at-

tention will be particularly turned to the modifications and varieties that may have been produced by the soil, climate, diet and drinks, occupations and pursuits, to which the people of these States are subjected, or in which they may be engaged. Such facts, therefore, as relate to the influence of these, or any other class of remote causes, coming especially within the scope of his work, will be thankfully received. Among the numerous objects to which his attention is directed, he will name the following, as those on which he is particularly desirous of collecting information.

1. Our Summer Endemics—Cholera Vulgaris, Cholera Infantum, Dysentery and Diarrhœa. Of their connexion with heat, humidity, local situation and diet;—their relative prevalence in town and country, and in high and low situations. Of their occurrence at other seasons than summer, and the modification which they then exhibit. Of their union and alteration in the same subject, and their conversion into other diseases, especially of the change of Cholera Infantum into Hydrocephalus.

2. Our Autumnal Fevers—Remitting and Intermitting. Of the times of their appearance and disappearance in successive years. The modifications of type which they exhibit, and their relative mortality in different autumns. Whether they ever put on the characteristic symptoms of the Yellow Fever of the maritime cities. Whether they have become more malignant in towns situated on our great rivers, since the introduction of steam boats. Are they, under any circumstances, contagious? Whether there are any important differences between those which infest the mouths of the rivers which empty into Lake Erie, and those which occur about the confluence of the streams which form the Mississippi. Of their treatment, with particular observations on blood letting, antimony, mercury, the bark, and water—cold, warm and tepid—as an external application.

3. Our Typhous Fevers. Whether from the times of their occurrence they might with propriety be called winter epidemics. Whether the description given of Typhus Mitior, by the English physicians, is applicable to it in this country. Whether it is ever contagious. To what extent it is induced by the employment of blood letting in the autumnal fever. Whether it generally seems to destroy life by invading the brain. Facts and conjectures relative to the causes of typhous atmospheric constitutions. Of the modifications produced in other fevers and the phlegmasiæ, by such constitutions. Of the treatment of Typhous Fevers—especially of the antimonial preparations, mercurials and cold water.

4. Of Puerperal Fever. Whether it has at any time been

epidemic in the western country; and whether it inclines more to a synocha or typhous type.

5. Of *Scarlatina Anginosa*, and *Angina Maligna*—in what way connected. Facts relative to their prevalence in 1792 or 3, and about the year 1810. The treatment, and especially of cold water. Of Measles—how far the antiphlogistic treatment, proper in this malady, is at any time to be modified from the prevalence of a typhous atmospheric constitution. What is the nature and proper treatment of the disease attending the retrocession of this eruption. Whether it ever happens in the remote settlements, independently of contagion. Of the Small-pox and Cow-pox.—Whether the former still continues to prevail in any part of the western country; and what are the obstacles to the general adoption of the latter. Whether *Uticaria* should be considered an idiopathic affection, or is always symptomatic of a disorder in the stomach.

6. Of *Phlegmasiæ*, of the lungs, trachea and fauces. Of their modification by a typhous atmospheric constitution. Whether the *Pneumonia Typhodes* ever prevailed in these States before the year 1812 or 13. Whether it did not chiefly occur in the country. In what respect it resembled the Spotted Fever of New England. Whether stimulants and tonics were not injurious in the treatment of it; and whether gastric and alvine evacuations were not more safe and proper than sanguineous.

Of the relative prevalence of Croup in different seasons of the year. Of its connexion in June and July with *Cholera Infantum*. How far blood letting is proper in its treatment.

Of the atmospheric changes which most uniformly produce Catarrh. Of the difference between a prevailing Catarrh from such changes and the *Influenza*. Whether the latter is contagious. Of the different periods when it has been epidemic in the western country, and especially of its prevalence in 1807. Of its geographical progress and successive appearance at different places. Whether it has been observed to be the precursor of more malignant epidemics. Whether in many instances it has been observed to produce *Phthisis Pulmonalis*.

7. Of Pulmonary Consumption. Whether idiopathic Consumption is not a rare disease in the western country. Whether the greater number of cases which receive this name are not *sequelæ* of *Dyspepsia*, Catarrh or *Hepatitis*. To what causes the infrequency of true phthisis should be ascribed. Whether any remedy for it has been found. Are there any proofs that an emigration from the seaboard to the West has cured this disease? Have not the persons who have been cured by mercury been affected with dyspeptic consumption? Is not the chronic inflammation of the mucous membrane of the fauces with an

elongation of the uvula which sometimes accompanies this disease, the effect of the pulmonary disorder?

8. Of Rheumatism. Its relative frequency among different classes. Its translation to internal organs. Of the means of cure—blood letting, antimony, mercury, stramonium, the bark, percussion and bandages. Whether Gout is not a rare disease in the West.

9. Whether Ophthalmia does not appear as an autumnal epidemic, especially in the newer settlements.

Whether it does not sometimes assume an intermitting form, and very commonly require general remedies. Is it ever contagious?

10. Of Jaundice and Hepatitis. Whether the former ever occurs as an epidemic. Is the bark of the wild cherry tree (*Prunus Virginiana*) of greater efficacy in this disease than the other vegetable bitters? If so, is it owing to the presence of prussic acid? Is chronic hepatitis, when not the offspring of intemperance nor autumnal fever, produced by the heat of our climate, or by miasmata?

11. Of Dyspepsia. Whether it be more prevalent in the Western or the Eastern States. Whether tobacco, tea, coffee, whiskey and hot unfermented bread, used to excess, are not its most efficient remote causes. How far the climate is concerned in its production. Of the nature of the acid in dyspeptic stomachs, and whether it be the effect of fermentation or morbid secretion. Of the diseases in the animal functions that are observed to arise from dyspepsia. Whether this disease generally abates about the thirty-fourth year. Of the cure. Of the relative prevalence of Sick Headache in the Eastern and Western States. Of its cure by emigration from one to the other.

12. Of the premature decay of the Teeth. How far it arises from climate, negligence, or indigestion. Is the use of tobacco in any degree a preventive?

13. Of Calculous Disorders. Whether they arise from the use of the calcareous waters which are generally drank in the western country.

14. Of chronic diseases of the Skin. Whether it be true that some varieties of Psora are peculiar to the West.

15. Whether Tetanus ever appears as an idiopathic disease. Does it as frequently supervene upon wounds in the Western country as in other places?

16. Of the relative prevalence of Hydrophobia, Mania, Palsy, and Apoplexy in the West and East.

17. Of the rare occurrence of Scurvy, Rickets and Goitre.

18. Of the diseases attendant on or following the earthquakes of 1811—of those occurring at the lead mines and at the salines or salt works.

19. Of the diseases produced by the bite of the rattle-snake, copper-head, and other venomous serpents. Their symptoms, pathology and cure.

20. Of the disease called "SICK STOMACH" and "MILK SICKNESS." Its symptoms, and the seasons and situations in which it prevails. Of its remote causes—iniasma, milk and flesh of herbivorous animals eaten by man, water with poisonous impregnation. *Post mortem* examinations. Cure.

21. Of the appearance and disappearance of diseases from clearing and cultivation—the introduction of new arts and occupations—the adoption of new modes of living.

22. Of the morbid effects of premature marriages.

22. Of the prolongation of life by an emigration to the Western States.

24. Of Bills of Mortality.

25. Of diseases of the Indians, especially those introduced by their intercourse with the whites. Of the causes of their decay in numbers.

26. Of diseases of the Negroes. How far they are liable to the ordinary complaints of the whites. Of the prevalence of Scrofula among them.

27. Of Epizootic medicine, or the diseases of brute animals, in the West. Of the symptoms, causes and cure of the complaint which in cattle is compared to the "Sick Stomach" in man. Of the disorder produced by eating the leaves and nuts of the foetid buckeye (*Æsculus Ohiaensis*, of the younger Michaux.) Of the autumnal salivation of horses.

28. An account of the soil and climate at each spot where observations on any of the above topics may be made.

The subscriber is not so unreasonable as to ask or expect replies to the whole of these queries from any individual. He flatters himself, however, that from among the numerous practitioners of the Western States and Territories, he may be favoured with information not only on the subjects here designated, but on every other involved in a comparison between the diseases of the Western Country and other parts of the world. To such as may be able and willing to promote the object in view, by entrusting him with the results of their experience, he engages to do full and equal justice in the quotations he may have occasion to make. Communications made at any period before the end of the year 1823, will be in time to answer the purposes intended.

DANIEL DRAKE, M. D.

Cincinnati, Ohio, September 1, 1822.

Return of Deaths in the City of Boston, from the 31st of December, 1822, to the 1st of January, 1823. Specifying the Sexes, Ages and Diseases of the deceased Persons.

Deaths in each Month.	Males.	Females.	Totals.	AGES.		
				Under 1 Year	1 Year 2	
January, . . .	40	45	85	From 1 to 2	2	96
February, . . .	43	40	83	2 to 5		54
March, . . .	54	50	104	5 to 10		42
April, . . .	66	38	104	10 to 20		49
May, . . .	46	31	77	20 to 30		129
June, . . .	42	35	77	30 to 40		120
July, . . .	39	41	80	40 to 50		113
August, . . .	58	51	109	50 to 60		76
September, . .	60	66	126	60 to 70		54
October, . . .	69	50	119	70 to 80		39
November, . .	64	50	114	80 to 90		22
December, . .	63	62	125	90 to 100		3
				Unknown,		127
Totals, . . .	644	559	1203	Total,		1203

The above mentioned Deaths were caused by the following Diseases and Casualties, viz.

Abscess, . . .	5	Brought over, . . .	554
Accidental, . . .	2	Epilepsy, . . .	2
Apoplexy, . . .	6	Fits, . . .	8
Asthma, . . .	2	Gout, . . .	1
Burns, . . .	1	Gravel, . . .	3
Cancer, . . .	8	Hemorrhage, . . .	2
Casualties, . . .	15	Hanging, . . .	2
Consumption, . . .	166	Hysteritis, . . .	1
Cramp, . . .	2	Jaundice, . . .	7
Croup, . . .	10	Infantile, . . .	224
Cholera Morbus, . . .	5	Inflammation of Brain, . .	17
Colic, Bilious, . . .	3	———— of Bowels, . .	5
Debility, . . .	4	Hydrocephalus, . . .	1
Diarrhœa, . . .	9	Intemperance, . . .	25
Diseases unknown, . .	218	Insanity, . . .	2
Dropsy, . . .	43	Leprosy, . . .	1
Dysentery, . . .	31	Fever Typhus, . . .	24
Diseased Heart, . . .	3	———— Lung, . . .	41
Drowned, . . .	21	———— Inflammatory, . .	6
Carried over, . . .	554	Total, . . .	926

Brought over, . . .	926	Brought over, . . .	1049
Fever, Bilious, . . .	10	Scald,	3
— Puerperal, . . .	9	Scirrhus,	4
— Pleurisy, . . .	5	Still Born,	115
— Nervous, . . .	4	Sudden,	9
— Rheumatic, . . .	2	Strangulated Hernia, . . .	1
— Yellow,	1	Suicide,	5
— Putrid,	1	Syphilis,	2
Murdered,	4	Suffocated,	2
Measles,	3	Spasms,	1
Mortification,	8	Tetanus,	1
Marasmus,	1	Whooping Cough,	5
Old Age,	56	White Swelling,	1
Palsy,	10	Worms,	4
Quinsy,	7	Cynanche Trachealis, . . .	1
Scrofula,	2		
		Total,	1203
Carried over, . . .	1049		

The number of inhabitants in the city of Boston, by the late census, were 43,893. Boston lies in 42° 23' 15" north latitude, and 70° 32' 42" west longitude.

By order of the Commissioners of Health,

JOHN WINSLOW, Secretary.

Statement of Deaths in the Town of Salem, (Massachusetts) from the 31st of December, 1822, to the 1st of January, 1823. Specifying the Sexes, Ages and Diseases of the deceased Persons.

Deaths in each Month.	Males.	Females.	Totals.	AGES.		
				Under	1 Year	
January, . . .	16	13	29	From	1 to 2	31
February, . . .	14	7	21		2 to 5	16
March, . . .	4	11	15		5 to 10	8
April, . . .	5	6	11		10 to 20	6
May, . . .	8	9	17		20 to 30	13
June, . . .	10	11	21		30 to 40	22
July, . . .	8	6	14		40 to 50	31
August, . . .	6	8	14		50 to 60	24
September, . .	9	16	25		60 to 70	20
October, . . .	10	12	22		70 to 80	22
November, . .	10	9	9		80 to 90	19
December, . .	9	8	17		90 to 100	10
						3
Totals, . . .	109	116	225		Total,	225

The above mentioned Deaths were caused by the following Diseases and Casualties, viz.

Apoplexy,	6	Brought over,	117
Aphthæ Infantum,	2	Hip Disease,	1
Ascitis and Anasarca,	2	Jaundice,	1
Atrophy,	2	Inflammation of the	
Bleeding at Navel,	1	Stomach,	1
Cancer,	2	Intemperance	15
Carditis,	1	Intus-susceptio,	1
Cholera Infantum,	3	Ischuria,	1
Congestion of Brain,	1	Killed by the upset-	
Consumption,	33	ting of a waggon,	1
Convulsions,	5	Measles,	6
Croup,	2	Mortification,	1
Cramp in Stomach,	1	Nervous Affections,	1
Disease of Heart,	2	Old Age,	18
Diarrhœa,	1	Palsy,	5
Dropsy in Chest,	8	Parturition,	1
—— in the Head,	4	Phthisis Pulmonalis,	7
Drowned,	4	—— Scrofulous,	1
Dysentery,	4	—— Tuberculosa,	1
Dysuria,	1	Pneumony,	7
Enteritis,	4	Purpura Hæmor-	
Epilepsy,	2	ragica,	1
Fever,	3	Scirrhus Pylorus,	1
—— Bilious,	2	Scrofula,	1
—— Hectic,	1	Sudden Death,	4
—— Inflammatory,	2	Suicide,	2
—— Putrid,	1	Syphilis,	2
—— Rheumatic,	1	Teething,	1
—— Typhus,	9	Tetanus, or Locked	
Frozen to Death,	1	Jaw,	2
Hemorrhage,	4	Uncertain,	25
Hepatic Disease,	2		
Carried over,	117	Total,	225

N. B. In addition to the above, it has been ascertained, that 43 of the inhabitants have died at sea, or in foreign countries. This list includes the deaths at the Alms House, viz: 20. The average number of residents at the Alms House in 1822, was about 260. According to the former bills of mortality, the deaths in 1818 were 194; in 1819, 195; in 1820, 181; in 1821, 298, exclusive of those who died at sea. By the late census, Salem contained 12,707 inhabitants.

By order of the Board of Health,

JOHN C. VERY, Secretary.

Salem, January 1, 1823.

Statement of Deaths in the City and County of New York, from the 1st of January, 1822, to the 1st of January, 1823. Specifying the Sexes, Ages and Diseases of the deceased Persons.

Deaths in each Month.		AGES.		
		Under From	1 Year 1 to 2	793 264
January,	278		2 to 5	219
February,	229		5 to 10	101
March,	251		10 to 20	170
April,	212		20 to 30	427
May,	237		30 to 40	421
June,	235		40 to 50	333
July,	318		50 to 60	203
August,	370		60 to 70	156
September,	328		70 to 80	98
October,	306		80 to 90	34
November,	236		90 to 100	10
December,	231		100 to 110	2
Total,	3231		Total,	3231

The above mentioned Deaths were caused by the following Diseases and Casualties, viz.

Abscess,	12	Brought over,	1169
Aneurism,	2	Dropsy in the Head,	141
Apoplexy,	60	Drowned,	56
Asphyxia,	6	Dysentery,	109
Asthma,	4	Dyspepsia,	4
Burned or Scalded,	21	Epilepsy,	6
Cancer,	11	Erysipelas,	6
Casualties,	38	Fever,	50
Catarrh,	1	— Bilious,	18
Child Bed,	19	— Remittent,	44
Cholera Morbus,	21	— Inflammatory,	2
Colic,	6	— Intermittent,	8
Compression of the Brain,	2	— Malignant,	1
Consumption,	624	— Puerperal,	5
Convulsions,	168	— Putrid,	2
Contusion,	5	— Scarlet,	1
Cramp in the Stomach,	5	— Typhus,	98
Drinking cold water,	4	— Yellow,	165
Diarrhœa,	56	Flux, Infantile,	115
Dropsy,	74	Fracture,	5
— in the Chest,	30	Frozen,	1
Carried over,	1169	Carried over,	2006

Brought over, . . . 2006	Carried over, . . . 2668
Gout, 2	Pleurisy, 18
Gravel, 2	Pneumony Typhodes, . . . 5
Hemorrhage, 7	Quinsy, 16
Hemoptysis, 8	Rheumatism, 1
Herpes, 2	Rupture, 7
Hives or Croup, . . . 109	St. Anthony's Fire, . . . 2
Jaundice, 10	Scirrhus of the Liver, . . . 1
Infanticide, 1	Scrofula, or King's Evil, . 12
Inflammation of the Bowels, 64	Sore Throat, 17
— of the Brain, . . . 22	Spasms, 4
— of the Chest, . . . 119	Spina Bifida, 3
— of the Liver, . . . 29	Sprue, 14
— of the Stomach, . . . 9	Still Born, 205
Insanity, 6	Stone, 1
Intemperance, 44	Strangury, 2
Locked Jaw, 5	Sudden Death, 11
Lumbar Abscess, 3	Suicide, 13
Marasmus, 31	Syphilis, 5
Measles, 1	Tabes Mesenterica, . . . 84
Menorrhagia 1	Teething, 37
Mortification, 9	Tumour, 1
Nervous Disease, 4	Ulcer, 9
Old Age, 115	Unknown, 46
Palsy, 36	Whooping Cough, . . . 35
Peripneumony, 23	Worms, 17
Carried over, . . . 2668	Total, 3234

Of the above Deaths, there were—

Men,	997
Boys,	836
Total Males,	1833
Women,	695
Girls,	703
Total Females,	1398
Total Number,	3231

REMARKS.

The City Inspector respectfully reports to the Board, a statement of deaths in the city and county of New York, for the year 1822, amounting to 3231, being 311 less than reported the preceding year.

The cause of this decrease might, at first view, be attributed solely to the removal of the inhabitants from the city, during

the prevalence of the late calamitous visitation of *Yellow Fever*: particularly, as during the months of August, September, and October, when that pestilence afflicted our city, fewer deaths occurred (and those chiefly among children) than in the corresponding months of the preceding year; but it ought to be observed, that during the other nine months, whilst our city was crowded with inhabitants, a decrease of 176 deaths took place, when compared with the same months of the former years; a sufficient proof that our city was generally more healthy than at that period.

The entire number of Fever cases that terminated fatally, during the last year, amounted to 388, being 51 more than occurred in 1821; out of this 388, 165 were of *Yellow Fever*, and one Malignant case that took place in November, in the State Prison.

The following table is subjoined, showing the places of nativity and the sexes of those that died of the *Yellow Fever*. The deaths ranged principally from twenty to sixty years. Eight cases occurred above sixty; one above seventy; and one at eighty; and eight persons of colour were among the number.

Places of Nativity of those who died of Yellow Fever:—
New York, 45; State of New York, 10; New Jersey, 9; Connecticut, 13; Massachusetts, 7; Rhode Island, 1; Pennsylvania, 2; Maryland, 2; Nova Scotia, 1; West Indies, 1; Germany, 9; Holland, 2; France, 2; England, 24; Wales, 1; Scotland, 3; Ireland, 33—Total 165.

Number of coloured persons that died of all diseases during the year, 396.

Respectfully submitted.

GEORGE CUMING, City Inspector.

City Hall, New York, January 20, 1823.

Statement of Deaths in the City and Liberties of Philadelphia, from the 1st of January, 1822, to the 1st of January, 1823. Specifying the Sexes, Ages, and Diseases of the deceased Persons.

				AGES.		
				Under	1 Year	
				From	1 to 2	953
					2 to 5	243
					5 to 10	193
					10 to 15	121
					15 to 20	78
					20 to 30	90
					30 to 40	424
					40 to 50	441
					50 to 60	348
					60 to 70	264
					70 to 80	217
					80 to 90	130
					90 to 100	67
					100 to 110	18
						4
Deaths in each Month.	Adults.	Children.	Total.			
January, . . .	158	114	272			
February, . . .	120	94	214			
March, . . .	143	92	235			
April, . . .	124	86	210			
May, . . .	142	122	264			
June, . . .	139	119	258			
July, . . .	173	268	441			
August, . . .	175	195	370			
September, . .	204	174	378			
October, . . .	231	122	353			
November, . . .	163	127	290			
December, . . .	173	133	306			
Totals,	1945	1646	3591	Total, 3591		

The above mentioned Deaths were caused by the following Diseases and Casualties, viz.

Aphthæ,	7	Brought over,	885
Angina Pectoris,	1	Cholera,	212
Atrophy,	29	Child Bed,	4
Apoplexy,	41	Decay,	18
Abscess,	15	Debility,	226
Asthma,	15	Dysentery,	191
Aneurism,	7	Diarrhœa,	58
Burns	15	Dropsy,	87
Consumption,	488	— in the Head,	120
Convulsions,	179	— of the Breast,	36
Compression of the Brain,	1	Drowned,	48
Cancer,	19	Dyspepsia,	13
Colic,	10	Disease of the Heart,	7
Catarrh,	29	— Hip Joint,	5
Casualties,	16	Death by the Cold,	3
Contusion,	5	— Poison,	2
Coma,	2	— Laudanum,	1
Cachexy,	4	— Violence,	1
Caries,	2	Drinking Cold Water,	2
Carried over,	885	Carried over,	1919

Brought over, . . .	1919	Brought over, . . .	2901
Drunkenness, . . .	25	Inflammation of the Bladder, 1	
Effusion, . . .	1	— Kidneys, . . .	3
Epilepsy, . . .	3	Insanity, . . .	24
Erysipelas, . . .	4	Jaundice, . . .	7
Fever, . . .	92	Lethargy, . . .	3
— Bilious, . . .	127	Locked Jaw, . . .	6
— Typhus, . . .	135	Mania a Potu, . . .	41
— Remittent, . . .	96	Malformation, . . .	1
— Intermittent, . . .	25	Obesity, . . .	1
— Inflammatory, . . .	3	Old Age, . . .	69
— Nervous, . . .	14	Palsy, . . .	28
— Hectic, . . .	3	Pleurisy, . . .	20
— Scarlet, . . .	9	Phlegmasia Dolens, . . .	2
— Puerperal, . . .	6	Rheumatism, . . .	6
Found Dead, . . .	6	Rickets, . . .	1
Fungus Hæmatodes, . . .	1	Spina Bifida, . . .	3
Fracture, . . .	3	Spasms, . . .	12
Gout, . . .	2	Sore Throat, . . .	15
Gangrene and Mortifica- tion, . . .	27	Scrofula, . . .	15
Hæmorrhage, . . .	24	Scirrhus, . . .	2
Hooping Cough, . . .	38	Suffocation, . . .	1
Hives, . . .	73	Syphilis, . . .	6
Hernia, . . .	5	Suicide, . . .	6
Inflammation of the Brain, 47		Sudden, . . .	43
— Breast, . . .	8	Still Born, . . .	257
— Bowels, . . .	56	Thrush, . . .	1
— Heart, . . .	1	Tabes, . . .	1
— Liver, . . .	29	Tympanites, . . .	1
— Lungs, . . .	96	Tumour, . . .	3
— Stomach, . . .	12	Teething, . . .	11
— Spleen, . . .	2	Ulcer, . . .	2
— Peritonæum, . . .	8	Unknown, . . .	81
— Uterus, . . .	1	Wounds, . . .	4
Carried over, . . .	2901	Worms, . . .	13
		Total, . . .	3591

Of the above Deaths, there were—

Males of 20 years and upwards, . . .	1171
Ditto under 20 years, . . .	815
	—1986
Females of 20 years and upwards, . . .	763
Ditto under 20 years, . . .	651
	—1414
Children, principally under one year, whose sex is unknown, . . .	191
	—
Total,	3591

Of the foregoing deaths, 396 died in the Alms House, and 560 were people of colour.

Agreeably to the Returns received at the Health Office from *one hundred and seven* Practitioners of Midwifery, there were born, in the City and Liberties of Philadelphia, from the 1st of January, to the 31st of December, 1822,

Male Children	3021
Female Ditto,	2701

Making the total number of Births,	5722
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The whole number of Deaths,	3591
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Difference between the Births and Deaths,	2131
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By order of the Board of Health,

JOSEPH PRYOR, Clerk.

Health Office, January 30, 1823.

Statement of Deaths in the Prune Street Prison during the Year 1822, with the Diseases of which they died; together with the Deaths in each Month.

MONTHS.	Received in the Hospital.	Relieved or Cured.	Number of Deaths.
January,	47	38	9
February,	29	26	3
March,	34	27	7
April,	31	23	8
May,	39	35	4
June,	41	35	6
July,	27	25	2
August,	68	57	11
September,	49	47	2
October,	46	39	7
November,	28	23	5
December,	31	28	3
Totals,	470	403	67

The above Deaths were caused by the following Diseases:—

Fever, Bilious, 2	Brought over, 53
— Nervous, 5	Epistaxis, 1
— Remittent, 33	Tetanus, 1
— Low, 1	Asthma, 1
Pneumonia Typhoides, 1	Diarrhœa, 2
Pneumonia, 9	Debility, 4
Phthisis, 1	Fits, 3
Hepatitis, 1	Mania a Potu, 1
Carried over, 53	Sudden, 1
	Total, 67

The following is a comparative statement of the mortality during the last year in the cities of London, New York, Philadelphia, and Washington, and of the different principal diseases in the respective places.

	Deaths.		Population.
London,	18,865	about	1,000,000
New York,	3,231	about	130,000
Philadelphia,	3,591	about	130,000
Washington,	296	about	14,856

DISEASES.	London.	N. York.	Philad.	Wash.
Asthma,	233	4	15	—
Apoplexy,	205	60	41	1
Consumption,	3603	624	488	44
Convulsions,	2929	168	179	16
Cholera,	—	21	212	39
Childbed	191	19	4	—
Croup	100	109	74	4
Dropsy,	851	73	87	7
— of the Brain,	324	141	120	5
— of the Chest,	86	30	36	1
Drowned,	113	56	48	3
Dysentery,	4	109	191	—
Fevers,	1121	391	514	81
Flux,	6	116	—	—
Inflammations,	1369	243	263	—
Intemperance,	4	44	25	5
Old Age,	2601	115	69	7
Small Pox,	600	—	—	—
Still Born,	647	205	257	6
Teething,	472	37	11	—
Whooping Cough,	557	35	—	—

AGES.	London.	N. York.	Philad.
Under 2 Years	4604	1057	1196
From 2 to 5	2033	219	193
5 to 10	932	101	121
10 to 20	649	150	168
20 to 30	1348	427	424
30 to 40	3905	421	441
40 to 50	1995	333	348
50 to 60	1826	203	264
60 to 70	1567	156	212
70 to 80	1224	98	130
80 to 90	680	54	67
90 to 100	104	10	15
Upwards of 100	2	2	4

Statement of Deaths in the City of Baltimore, from the 1st of January, 1822, to the 1st of January, 1823. Specifying the Sexes, Ages and Diseases of the deceased Persons.

Deaths in each Month.	Males.	Females.	Total.	AGES.			
				Under	1 Year,		
				From	1 to	2	468
January, . . .	112	74	186		2 to	5	154
February, . . .	92	77	169		5 to	10	174
March, . . .	76	65	141		10 to	20	91
April, . . .	100	58	158		20 to	30	232
May, . . .	71	53	124		30 to	40	265
June, . . .	79	31	110		40 to	50	341
July, . . .	112	71	183		50 to	60	239
August, . . .	164	119	283		60 to	70	153
September, . . .	225	157	380		70 to	80	90
October, . . .	186	131	317		80 to	90	63
November, . . .	92	69	161		90 to	100	39
December, . . .	65	42	407		100 to	110	6
							4
Totals,	1372	947	2319		Total,		2319

The above mentioned Deaths were caused by the following Diseases and Casualties:—

Abscess,	4	Brought over,	799
Apoplexy,	9	Dropsy,	51
Asthma,	4	— in the Head,	34
Aphthæ,	5	— in the Breast,	3
Burns,	11	Drowned,	16
Caries,	1	Dysentery,	56
Cancer,	3	Erysipelas,	1
Casualties,	17	Fistula in Ano,	1
Child Bed,	23	Fever, <i>Bilious</i> ,	374
Cholera Morbus,	5	— Hectic,	1
— Infantum,	269	— Inflammatory,	1
Colic,	2	Intermittent,	12
— Cramp,	6	— Typhus,	42
— Bilious,	7	Fungus Hæmatodes,	1
Consumption,	296	Fracture,	1
Convulsions,	83	Gravel,	7
Cramp in Stomach,	2	Gout,	2
Croup,	41	— in Stomach,	1
Diarrhœa,	9	Hæmorrhage,	5
Drinking Cold Water,	2	— Uterine,	2
Carried over,	799	Carried over,	1410

Brought over, . . .	1410	Brought over, . . .	1755
Hydrophobia, . . .	1	Palsy, . . .	19
Inflammation, . . .	1	Pneumonia Typhoides, . . .	3
— of the Bladder, . . .	1	Peripneumony, . . .	6
— of the Brain, . . .	21	Pleurisy, . . .	32
— of the Breast, . . .	10	Quinsy, . . .	9
— of the Bowels, . . .	1	Rheumatism, . . .	10
— of the Kidneys, . . .	1	Scrofula, . . .	11
— of the Liver, . . .	7	<i>Small Pox!!!</i> , . . .	122
— of the Lungs, . . .	5	Still Born, . . .	121
— of the Stomach, . . .	1	Sudden Death, . . .	31
Insanity, . . .	2	Suicide, . . .	3
Intemperance, . . .	47	Scald, . . .	4
Jaundice, . . .	6	Syphilis, . . .	9
Locked Jaw, . . .	3	Teething, . . .	16
Liver Complaint, . . .	35	Tumour, . . .	1
Measles, . . .	4	Ulcer, . . .	1
Marasmus, . . .	78	Unknown, Adults, . . .	8
Mortification, . . .	29	— Infants, . . .	117
Murdered, . . .	5	Whooping Cough, . . .	17
Old Age, . . .	87	Worms, . . .	24
Carried over, . . .	1755	Total, . . .	2319

Of the deaths above enumerated, 582 were people of colour.

By order of the Board of Health,

WILLIAM D. HARRIS, Secretary.

Statement of Deaths in the City of Washington, from the 31st of December, 1821, to the 1st of January, 1823. Specifying the Diseases of the deceased Persons.

DEATHS IN EACH MONTH.						Adults.	Children.	Totals.
January, . . .	.	.	.	.	.	16	10	26
February, . . .	.	.	.	.	.	11	8	19
March, . . .	.	.	.	.	.	10	6	16
April, . . .	.	.	.	.	.	9	5	14
May, . . .	.	.	.	.	.	16	6	22
June, . . .	.	.	.	.	.	7	6	13
July, . . .	.	.	.	.	.	10	19	29
August, . . .	.	.	.	.	.	14	14	28
September, . . .	.	.	.	.	.	26	25	51
October, . . .	.	.	.	.	.	22	18	40
November, . . .	.	.	.	.	.	13	12	25
December, . . .	.	.	.	.	.	4	9	13
Totals,						157	139	296

The above mentioned Deaths were caused by the following Diseases and Casualties, viz.

Apoplexy,	1	Brought over,	220
Burns,	2	Fever, Intermittent,	2
Cholera,	17	— Puerperal,	2
— Morbus,	18	Hepatitis,	1
— Infantum,	4	Intemperance,	5
Consumption,	44	Marasmus,	2
Convulsions,	16	Old Age,	7
Colic,	11	Parturition,	1
Croup,	4	Phrenitis,	1
Contusion,	1	Pneumonia,	10
Casualty,	2	Pleurisy,	10
Cancer,	1	Palsy,	2
Drowned,	3	Spine, injury of,	1
Dysentery,	3	Scurvy,	1
Dropsy,	7	Still Born,	6
— in the Brain,	5	Sudden,	5
— in the Chest,	1	Suicide,	3
Duel,	1	Sore Throat,	1
Enteritis,	2	Thrush,	1
Fractured Skull,	1	Unknown,	1
Fever,	34	Ulcers,	1
— Typhus,	4	Worms,	11
— Bilious,	38	Wounds,	2
Carried over,	220	Total,	296

Return of Deaths in the City of Charleston, (South Carolina) from the 1st of January, 1822, to the 1st of January, 1823. Specifying the Sexes, Ages and Diseases of the deceased Persons.

Deaths in each Month.	Males.	Females.	Totals.	AGES.		
January,	22	31	53	Under 3 Years		265
February,	31	25	56	From 3 to 10		58
March,	39	25	64	10 to 20		59
April,	34	31	65	20 to 30		145
May,	41	35	76	30 to 40		150
June,	69	47	116	40 to 50		80
July,	67	37	104	50 to 60		63
August,	41	42	83	60 to 70		40
September,	47	33	80	70 to 80		33
October,	58	28	86	80 to 90		22
November,	43	29	72	90 to 100		6
December,	45	25	70	100 to 110		4
Totals,	537	388	925	Total,		925

The above mentioned Deaths were caused by the following Diseases and Casualties, viz.

Abscess,	3	Brought over,	668
Accident,	14	Fever, Yellow,*	2
Apoplexy,	8	Hæmorrhage,	3
Asthma,	3	Inanition,	1
Bite of a Snake,	1	Inflammation of the Brain,	3
Cancer,	4	— of the Lungs,	2
Catarrh,	10	Insanity,	8
Child Bed,	6	Intemperance,	7
Cholera Morbus,	2	Jaundice,	2
Colic,	7	Liver Complaint,	5
Constipation,	1	Locked Jaw,	19
Consumption,	156	Measles,	26
Convulsions,	42	Mortification,	2
Cramp,	2	Old Age,	50
Croup,	10	Palsy,	10
Debility,	60	Pleurisy,	5
Diarrhœa,	92	Rheumatism,	11
Dropsy,	79	Scrofula,	4
Drowned,	9	Sore Throat,	46
Dysentery,	10	Spasms,	14
Eruption,	1	Sudden,	4
Fever, Bilious,	42	Suicide,	3
— Catarrhal,	35	Teething,	24
— Country,	27	Thrush,	3
— Nervous,	17	Violence,	1
— Remittent,	3	White Swelling,	2
— Worm,	24		
	—	Total,	925
Carried over,	668		

Of the above Deaths, there were—

White Males,	284
White Females,	142
Total Whites,	—426
Black Males,	253
Black Females,	246
Total Blacks,	—499
Total Deaths,	925

By order of the Board,

JAMES A. MILLER, Clerk.

* The two cases of *Yellow Fever* were imported—one from the *Havana*, and the other from *Florida*.

Emetics useful in counteracting the inordinate effects of Mercury.

We derive the following extract from the thesis of Dr. Haskins, a graduate of the University of Pennsylvania, at the late commencement. It may serve, perhaps, to inspire confidence in the practice which it announces, to state, that Dr. Field, the author of it, is well known to us, as one of the most learned, experienced, and authoritative physicians of Virginia. We confess, however, that we were, at first, a little surprised at the success of the practice. It is a fact, with which we have long been acquainted, that active evacuations of the alimentary canal, are the very best means of awakening susceptibility to the impression of mercury. Even a small portion of ipecacuanha with calomel, so as scarcely to excite nausea, we have found sometimes to produce salivation, when the latter article alone had proved ineffectual. The apparent contradiction which here occurs may, perhaps, be reconciled on the established principle, that remedies in different states of the system are productive of opposite effects. We have for many years entertained the well weighed opinion, the result of much inquiry and observation, that the primary operation of mercury is on the stomach, and that, however administered, that organ, either by *direct* or *indirect* sympathy, is put into a condition, of which the salivary glands, and all other parts of the system, participate. The present is not the occasion to bring forward the facts and experiments which warrant such a conclusion. But we shall hereafter do it, and we think, in a shape that cannot fail to silence all cavil and disputation, on this point, among reasonable and unprejudiced men.—EDITOR.

“ During the last autumn, Dr. Richard Field, of Petersburg, Virginia, in treating one of his patients for a profuse hemorrhage of the bowels, brought on by the inordinate action of calomel, with his favourite prescription, consisting of opium, ipecacuanha, and sugar of lead, gave the remedy in rather large doses, and the stomach being extremely irritable, violent vomiting was excited. The patient, at the time, was labouring under a most profuse salivation, amounting even to sloughing of the mouth and fauces. The hemorrhage was soon suppressed, (an instance illustrative of the utility of vomiting in hemorrhage,) and with an almost simultaneous arrestation of the mercurial affection.

“ Having a mind always susceptible of improvement, and of unbounded zeal in his profession, Dr. Field* determined to profit by the hint thus given, and was induced to make a farther trial of the remedy, in some other violent cases of salivation then under his care, and which had resisted the usual mode of

treatment. The effects of the plan were not less beneficial than in the first instance.

“Not long after this, I happened to be in Petersburg, and meeting with Dr. Field, he informed me of the decided advantage which he had derived from emetics, under such circumstances, and assured me that he had not been disappointed in a solitary instance, referring me to several other respectable practitioners of the town, who, he said, would bear ample testimony to the efficacy of the practice. I was then requested to inform my preceptor, who was once a pupil of Dr. Field, on my return to the country, of the circumstance, and which I accordingly did. Confiding in every thing coming from Dr. Field, my preceptor immediately made an extensive trial of the remedy, and in a short time was enabled to corroborate all which had been previously said in favour of it.

“On the whole, from what I have myself seen of the utility of emetics in arresting inordinate salivation, and the gangrene resulting from it, I think I am warranted in pronouncing the practice a most important medical improvement.”

A Solution of Opium in Nitric Acid, beneficial in Hectic Fever.—We have employed, says Dr. Harrison, a distinguished physician of Louisville, Kentucky, opium dissolved in nitric acid, with effects decidedly and eminently beneficial in hectic fever. One drachm of opium is dissolved in one ounce of nitric acid, in an open vessel, to allow the nitrous fumes, which are disengaged, to escape. According to the condition of the system, we give twenty, thirty, or forty drops, three times a day.

When it manifests an action too predominantly narcotic, we diminish the quantity of the opium. But a sufficient quantity of opium must be dissolved, so as to calm the hectic irritation, at the same time, the accompanying acid imparts strength. We have witnessed one case of entire recovery with this combination when nitric acid alone, mercury to a ptyalism, opium, &c. were tried with little benefit. Even in cases, where the prospect was clouded by the shadows of death, life was evidently prolonged, and the passage to the grave rendered more smooth and gentle, by its administration.—*Communicated to the Editor.*

Termination of the case of Mr. P. of Louisville, Kentucky.

(One of our correspondents writes us to the following effect.—EDITOR.)

“The highly interesting and novel case of Mr. P. of Louisville, Kentucky, furnished by Dr. Caldwell, and inserted in No. 1, of

the Philadelphia Medical and Physical Journal, has terminated in the death of the patient.

“Mr. P. suffered such little positive derangement of health, from the presence of the amalgam, which was accumulated in his bowels, that he pursued his ordinary avocations, with little or no interruption.

“But in July last, he was attacked by bilious fever of a high grade of violent excitement, in which, threatening symptoms of great abdominal irritation were early manifested. Bleeding, blistering, calomel, with the minor subsidiary means for the reduction of inflammation, were all entirely nugatory and unavailing, to arrest the unrelenting and ceaseless vomiting, or stay the rapid march of the case to a fatal termination.

“About six or eight hours previous to dissolution, the patient became more tranquil, the pain subsided, and the tumour changed its position, the amalgam passing evidently along the track of the intestines.

“A post mortem examination, revealed an entire mortification of a portion of the intestines—the metallic substance was in the state of an amalgam, as it had been taken; part of it had broken through the coats of the intestine, in which it had lodged, whilst the greater portion had passed downwards in the cavity of the intestinal tube, towards the rectum.”

UNIVERSITY OF PENNSYLVANIA.

At a public commencement held on Friday, the 4th day of April, 1823, the degree of Doctor of Medicine, was conferred upon the following gentlemen.

NEW HAMPSHIRE.

Asahel Dearborn, on *Cynanche Trachealis*. •

RHODE ISLAND.

Daniel Watson, on *Animal Heat*.

NEW JERSEY.

William A. Tatem, on *Constipation*.

Charles F. Clark, on *Cantharides*.

M. Burn Wright, on *Fistula Lachrymalis*.

PENNSYLVANIA.

Edward Jenner Coxe, on *Introduction of Foreign Substances into Blood vessels*.

J. Hanckel Ellerson, on the *Digestive Organs*.

George Henry Brinton, on *Hydrothorax*.

Jesse Young, on the *Local Origin of Diseased Action*.

John P. Hopkinson, on the Nerves of Respiration.
 James Hepburn, on Hæmorrhoids.
 Benton Smith, on Trachietis.
 Samuel Wilson, on Hæmoptysis.
 Jacob Jeanes, on Dyspepsia.
 John F. D. Heineken, on Scrofula.
 James Young, on Intermittent Fever.
 John Redman Paul, on Constipation.
 Samuel C. Gwinner, on the Fever at the Alms House, 1821.
 William Rush, on Bilious Fever.
 Gustavus Colhoun, on Varicose Saphina.
 Joseph L. Smith, on the Disease of Harrisburg.
 William Milnor, jun., on Mania a Temulentia.
 Alfred N. M'Dowell, on the Disease of Franklin County.
 William M. Currie, on Cholera Infantum.
 Morris M'Clenachan, on Ergot.
 William Gries, on Worms.
 John Quigley, on Hydro-cyanic Acid.
 Samuel Smith, on Pneumonic Inflammation.
 William S. Cox, on Trachietis.
 Silas George, on Carbonic Acid.
 Philip Walter, on the Management of the Placenta.
 Samuel Biddle, on Strictures of the Urethra.
 Joseph Cloud, jun., on Crisis.
 William H. Baum, on the Formation of Bone.
 Charles Baum, on Spiræa Trifoliata.
 Frederick A. Muhlenburg, on Vis Medicatrix Naturæ.
 Francis Jul. Le Moyne, on Artificial Drinks.
 Lawrence Fauns, on Strictures of the Urethra.
 James H. Bradford, on Dysentery.
 Abraham L. Cox, on Stimulated Diseases.
 Henry M. Read, on the Treatment of Mania a Potu.
 Reynell Coates, on Fractures of Inferior Extremities.
 Aquilla Jones, on Injuries of the Head.
 Alfred Drake, on Pressure as a Remedy.
 James M. Greene, on Cholera Infantum.
 Joseph Price, on Cataract.
 William Davis, on Hæmoptysis.
 David Rutter, on Ardent Spirits.
 William H. Geyer, on Prussiate of Iron.

DELAWARE.

T. Jefferson Herdman, on Cynanche Trachealis.
 J. Franklin Vaughan, on Diseases of the Larynx.
 Bolitha Laws, on Cold Affusion.
 William Collins, on Bilious Fever.

MARYLAND.

Stephen Collins, on Asthma.

DISTRICT OF COLUMBIA.

Charles Henry Whiting, on Trachietis.

VIRGINIA.

Henry C. Worsham, on the Solanum Tuberosum.

Albert G. Read, on Peritonitis.

Fielding Ficklen, on Gastritis.

John Ingram, on Diabetes.

Matthew Page, jun. on the Structure of the Kidney.

Isaac N. Buck, on Colic.

William Hamlin, on the Modus Operandi of Medicines.

Thomas J. Harper, on Pneumonia Biliosa.

Frederick Perkins, on Pertussis.

John M. Goodwin, on Dysentery.

James Lyle, on Dysentery.

George Morton, on Tobacco.

Daniel L. Dunscomb, on Impregnation.

William Argyle, on Cynanche Trachealis.

Thomas I. Johnson, on Dysentery.

Wood T. Johnson, on Trachietis.

Lewis Shanks, on Marsh Effluvia.

William H. Caruthers, on the Magnolia Tripetala.

James B. Sullivan, on Dysentery.

John Butts, on Gastritis.

Mitchell Tate, on Pneumonia Typhoides.

Carter H. Bradley, on Acute Hepatitis.

John S. Epes, on the Colchicum Autumnale.

John W. Cropper, on Hydrothorax.

B. Franklin Bache, on the Teeth, and their Diseases.

Micajah T. Lynch, on the Epidemic Fever of Virginia.

George T. Yerby, on Cholera Morbus.

Robert M. Carver, on Gonorrhœa.

Aaron B. Haskins, on Mercury.

Charles G. Butler, on Amenorrhœa.

NORTH CAROLINA.

Lotan G. Watson, on Mercury.

John A. Skinner, on Inflammatory Pleurisy.

Alexander W. Mebane, on Gonorrhœa.

SOUTH CAROLINA.

Thomas E. Powe, on Amenorrhœa.

William R. Erwin, on Leucorrhœa.

Frederick Marks, on Incised Wounds.

Ulrick B. Clarke, on Pneumonia.

John B. Gaston, on Purgatives.

Alexander J. H. Duncan, on Ol. Terebinthinæ

Cornelius K. Ayer, on Diseases of the Liver.

William L. M'Call, on the Diseases of the Slaves on the Wateree River.

William Johnson Bobo, on Angina Suffocativa.

Samuel P. Simpson, on Hernia.

GEORGIA.

Willis Greene, on Hydrocephalus.

Hudson A. Thornton, on Marsh Miasmata.

OHIO.

Elisha Embree, on the Diseases of the Western Country.

At the same time, the Degree of Master in Pharmacy was granted to Charles F. Wilstach, M. D. of Washington City.

W. E. HORNER, M. D. *Dean.*

TO READERS AND CORRESPONDENTS.

1. WE wish it to be distinctly understood, that we neither have, nor will receive, any pecuniary compensation as Editor of this Journal. The motives which led us to engage in the enterprise, are announced in our prospectus, and will be found liberal, and wholly disinterested. To this subject attention is now called, with a request, that communications for the work, and all matters of correspondence relative to it, may be addressed to the publishers, Messrs. H. C. Carey and I. Lea, Booksellers, Philadelphia.

2. We are in possession of a number of valuable papers contributed to this Journal, for which we tender our acknowledgments, with a promise, that they shall duly appear.

3. We are requested to invite the attention of our readers to the following advertisement.

University of Pennsylvania.

“The committee of the trustees appointed to distribute the tickets of gratuitous admission to the course of medical lectures which will begin in November next, agreeably to the foundation established by the Medical Faculty, give notice, that applications in writing, under seal, addressed, for the above named committee, to the care of the secretary of the University of Pennsylvania, may be made at any time before the first Monday of September next. It is required, that each application be accompanied by a respectable testimonial of the good character of the applicant, and of his being in such restricted circumstances as entitle him to the benefit of this foundation. It must also appear, that he has attained the age of eighteen years, is possessed of sufficient literary acquirements, and of studious habits. On

the first Monday of September next, the committee will open and decide on the applications, and return the others their applications and testimonials, their names not to be disclosed by the committee.

BENJAMIN CHEW,
WM. MEREDITH,
JAMES GIBSON,
*Committee of the Trustees.**

Philadelphia, May 29, 1823.

4. The medical lectures in the University of Pennsylvania will commence as usual, on the first Monday in November next.

Anatomy, by P. S. Physick, M. D. Professor, and Wm. E. Horner, M. D. Adjunct Professor, and teacher of Practical Anatomy.

Materia Medica and Pharmacy, by Jno. R. Coxe, M. D.

Institutes and Practice of Physic and Clinical Practice, by N. Chapman, M. D.

Midwifery and the Diseases of Women and Children, by Thomas C. James, M. D.

Chemistry, by Robert Hare, M. D.

Surgery, by William Gibson, M. D.*

5. We cannot forbear to recommend to the notice of our readers, the initial article of our present number. It is an introductory discourse to a series of lectures on the leading and more important doctrines of pathology, in which we think the subject

* We are happy to announce, that a Clinical School has been established in the Alms-House of this city, by the liberal and enlightened Managers of that institution, on an extensive scale. Containing not less on an average, than from a thousand to fifteen hundred patients, this immense infirmary holds out the greatest advantages to the student of practical medicine and surgery, as well as to the cultivator of morbid anatomy. In the winter, clinical lectures are regularly delivered, twice a week, by the professors of the practice of physic and of surgery, and during the rest of the year, by the other physicians and surgeons attached to the house. To enable so large a class as may be expected to attend, to derive the whole benefit of the clinical instructions, the students are seated in an amphitheatre, into which the patients, the subjects of remark, are in succession introduced on a bed, from the adjacent *select wards*. The students, in the interval of the lectures, have the privilege of visiting the wards, to examine the patients—to consult the record of the cases, and to transcribe any of the prescriptions, which may be deemed valuable, &c. &c.

is treated with unusual ability. Besides its well known Medical College, this city claims a private school for the teaching of medicine, in which the discourse alluded to was delivered. As the plan of this institution is not generally known, we may, perhaps, be excused for saying a word in explanation of it.

On the 1st of April, which closes all the exercises in the medical department of the University, lectures are commenced in the private school, on the several branches of medicine. When any subject is concluded, the students are interrogated, to ascertain the state of their improvement—in which examinations, errors or misapprehensions are corrected, obscurities explained, and their intelligence rectified as well as enlarged. As this system is pursued unremittingly for six months, time is afforded for the fullest courses of lectures, and on several of the branches, these are repeated.

The student has access to one of the largest medical libraries in this country, to an ample anatomical collection, and to all that appertains to surgery and midwifery which is calculated to illustrate these subjects—and in short, to whatever will facilitate his studies or promote the acquisition of general knowledge. During this period he is also in attendance in the large hospitals of this city, and receives the benefit of an excellent system of clinical instruction. The teachers in this institution are the following:

On Midwifery and the Diseases of Women and Children,
Wm. P. Dewees, M. D.

Anatomy, W. E. Horner, M. D.

Surgery, H. L. Hodge, M. D.

Physiology, Jno. K. Mitchell, M. D.

Pathology, Jno. Bell, M. D.

Materia Medica, Pharmacy, and Medical Chemistry, Saml. Jackson, M. D.

Practice of Physic, N. Chapman, M. D.

In recommending this school, which we cannot refrain from doing most strongly, with such impressions as we entertain in relation to it, we shall be vindicated against any illiberal imputations, when we declare, that the only reward which we derive from the aid we give to it, is the consciousness that we are, in a slight degree, promoting a scheme of great benefit, and at the same time, contributing to train, by the exercise of lecturing,

a set of men, who are destined, we are quite sure, hereafter to act on a larger and more conspicuous theatre of public usefulness.

6. We have the gratification to announce the publication of a work from the pen of Dr. Horner on practical anatomy, of which, as we mean to review it in our next number, we shall say no more, at present, than that we have heard it most favourably spoken of by those who are fully competent to judge of its merits.

7. The "Elements of Therapeutics and Materia Medica," by the editor of this Journal, he learns, from an authentic source, is undergoing a translation for the Parisian press, which he is induced to notice, to show the interest that is taken now in Europe in the medical literature of the United States, and to express his own acknowledgments to the distinguished physician who designs to render him this signal act of kindness.

8. In perusing the papers of Dr. Daniell and Dr. Washington, in our present number, our readers can hardly fail to be struck, as we have been, by the irreconcilable discrepancies in the theoretical and practical views which they exhibit, and the more so, as they are the productions of men of sound judgment, great accuracy of observation, and ample experience in the disease. Differing, however, as they do, their papers will still be read with interest, as well from their original strain and bearing, as from the momentous nature of the subject which they discuss. Much as has been written upon it, we remain in utter ignorance of yellow fever. It may be safely affirmed that its mode of origin, its pathology, and treatment, are as little understood, and our opinions regarding these points, as unsettled, as they were thirty years ago, when the fell disease burst upon us. But let us not turn from the subject in despair. We have the best opportunities for its investigation—time has cooled our tempers—we are less under the influence of preconceived notions, and by continuing our researches, we may expect happier results.

TO SUBSCRIBERS.

The publishers of this Journal request a remittance (free of postage) of the amount of subscription (five dollars) for the present year. All those who do not pay before the appearance of the next number, will be, without exception, stricken from the list.

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THE
PHILADELPHIA JOURNAL
OF THE
MEDICAL AND PHYSICAL SCIENCES.

ART. I. *An Introductory Lecture to a Course of Pathology.*
By JOHN BELL, M. D.

THE Institutes of Medicine, on one branch of which I am to address you, have been divided into the two general heads of *Hygieine* and *Iatriken*.*

Hygieia, in its most extended sense, comprehends all which relates to man in a healthy state, and is subdivided into three parts.

I. *Physiology*, or a discourse on human nature, referring to the nature, causes and effects of life and health.

II. *Physiological Semeiology*, or the signs by which life and health, and their various states and grades, are known.

III. *Dietetics*, or the aids and rules by which life and health may be preserved the longest possible period.

Iatrike, or medicine, strictly so called, has likewise a three-fold application.

I. *Pathology*, or whatever relates to the nature, differences, causes and effects of disease.

II. *Pathological Semeiology*, or, as it is more usually understood, simply semeiology or semeiotics, is the doctrine

* Gaubius, *Institutiones Pathologiæ Medicæ*.

of signs, which teaches whatever ought to be known by these means of the present, past and future states of the disease—the nature of which would otherwise be involved in obscurity.

III. *Therapeutica*, or the selection and administration of remedies for the cure of disease.

Pathology is by some, erroneously, deemed synonymous with Nosology and Nosography. The two latter terms refer simply to a classification of diseases with their peculiar symptoms: thus, *hepatitis* in Cullen's Nosology comes under the first class or *pyrexia*, second order *phlegmasia*, and is given with its leading symptoms: whereas, in entering into the pathology of the disease, we enumerate the various causes calculated to produce it, as hot climate, imtemperate use of ardent spirits, vinous drinks and the depressing passions—and next its symptoms and effects immediate as well as sympathetic. In fact, the very origin of the word, *logos*, a discourse, and *pathos*, disease, or a passion or emotion of the mind, while it points out the nature of the study, shews the range which is admissible in it, and, in which we are not to restrict ourselves to the simple consideration of physical causes, but extend our views to the passions of the mind, both on account of their being causes of disease, and of their being more strongly excited, or even apparently evolved during its continuance. Knowledge in detail ought ever to be followed up by the philosophical combination of results; and applying this to pathology, we may, without overrating its importance, call it the complement of all the other medical studies, and pursuits in natural history, which are ranged around it as a common centre, at unequal distances. We may safely aver that no branch of medicine demands more industry in research, patience in investigation, nicety of discrimination and enlarged views of mankind than pathology. It is on it that the physician may concentrate all the native energies of his mind, all the experience derived from observation in the hospitals and sick room, all the gleanings from the pages of the moralist, the historian and traveller.

He will see man, in his state, if not of primeval innocence, at least of primeval simplicity, his wants few and desires moderate—obtaining his food from the fruits of the earth, and the milk of his herds and flocks, feeling no fatigue but that following regular labour, requiring repose no longer than for the renovation of strength, and going finally to his long home in the sleep of old age, exempt from the rackings of pain and disease. Contrasted with this, he will find man in society, enervated by luxury, stimulated to never ceasing exertion by the calls of ambition or avarice—a stranger to peace, seeking pleasure in the gratification of every sense, perverting the feelings of nature by all the suggestions of art: with a feverish body and agitated mind, incapable of soothing the one or calming the other, he throws himself on the downy couch and closes his eyes to the external world, but to be haunted in broken slumbers by the conjurations of his own disordered fancy. The morn finds him unrefreshed, the eve tormented with gloomy forebodings. A victim to disease, his strength fails him; yet still he has lost all the moral energy to meet that death, which he knows will be his only relief.

Let us dwell intently on this picture, not to flatter the imagination by contrasts of light and shade—but to deduce practical lessons, for the man of observation as well as the physician. Witnesses to the muscular energy, active circulation, and healthy digestion of the agriculturist and shepherd; and to the train of diseases laid by luxurious living, and excessive excitement of the senses, by the inhabitant of the city; we draw the conclusion, that to restore the latter to health we must place him in the situation of the former, and promise him the renovation of his physical and mental faculties, if he consent to breathe a pure air, take regular and active exercise, and restrain himself to a simple diet. Certain of the effects, we have but to display the requisite delicacy and management in the recommendation of the means, ever mindful, that though we may propose occasionally the fare of an anchorite, we are not to insist on the mortified look and carriage of a penitent, but

rather call forth all the blandishments of hope. It is by means apparently so simple, pointed but by this moral pathology, as it may be termed, that many physicians have acquired the greatest reputation, and been the instruments of most extensive good. Without referring to foreign lands, we have an illustrious proof of this fact at home, and let it be our duty to second with all our zeal, a practice conformable to the dictates of long experience and sound morality. We shall find our reasonings with the crowd more successful on these principles, than in the technical language of great excitement, phlogosis of the stomach, chronic gastritis, &c.

The pathologist will be necessarily led to an attentive perusal of general history, with the twofold view of enlarging his mind by a knowledge of those great events which have changed the condition of mankind, and brought about the fall of empires—and also of learning the effects which civilization, commerce and the arts have produced on the physical constitution of man—so as to trace with more certainty the causes and modifications of disease, and deduce in consequence the correct treatment, adapted to every variety of situation and circumstance: avoiding thereby, the two evils of leaving every thing to nature in the cure, where nature has been entirely disregarded in the causes, or of taking man as a mere machine to operate on, as our preconceived notions may direct.

We shall, of course, establish æras: as when diseases were few and simple in the natural man, more violent and numerous in the social, and complex and varied in the civilized and luxurious state.

By knowing, also, when certain diseases first appeared among us, and whether of foreign or domestic origin, we can with greater probability of success, direct our restrictive measures to circumscribing or extinguishing the evil—in the execution of which, we may be also guided by historical examples. Thus, the Mosaic law directed, that all those with leprosy should either be secluded for a certain number of days, or retire from among their brethren, and

live alone. "And the leper in whom the plague is, his clothes shall be rent, and his head bare, and he shall put a covering upon his upper lip, and shall cry unclean, unclean ! all the days wherein the plague shall be in him, he shall be defiled, he is unclean—he shall dwell alone, without the camp shall his habitation be." The precautions adopted after the expiration of the period of seclusion, are worthy of imitation in all places afflicted with contagious diseases.

"And he that is to be cleansed, shall wash his clothes, and shave off his hair, and wash himself in water that he may be clean ; and after that he shall come into the camp, and shall tarry abroad out of his tent seven days. But, it shall be on the seventh day that he shall shave all his hair off his head, and his beard, and his eye-brows, even all his hair he shall shave off : and he shall wash his clothes : also, he shall wash his flesh in water, and he shall be clean." Levit. chap. xiv.

The precautions against the spreading of this disease from one house to another, were equally prudent. Scraping the walls at first, then the removal of the infected portions, plastering, and finally, if necessary, the entire demolition of the building.

In Egypt there are laws at this day, for depilation from all parts of the body. Leprosy was introduced into Italy by the armies of the Greek emperors, but was prevented from spreading by the sage restrictive laws of the Lombards, by which, a leper was compelled to abandon his home and live secluded from all the world, without having the power to dispose of his goods : and the better to prevent other persons holding any intercourse with him, he was rendered incapable of retaining any civil right whatever.* The disease was again brought into Europe by the crusaders, and its progress checked by means similar to those just mentioned. In Morocco at this day, the lepers are kept apart, and no person suffered to visit them—but unhappily, they are permitted to associate freely together. What

* Spirit of Laws, Book XIV, Chap. X.

sufferings and mortality would the world have been saved, had similar prudential measures been promptly adopted, and rigidly adhered to, on the first appearance of the small-pox in Europe, and subsequently, when syphilis was either introduced or began to engage public attention.

History also points out to us the moral, which it is difficult to separate from the physical causes of disease, and which have had evidently a powerful operative influence, such as irreligion, licentious and tyrannical government, which prostrate all the energies of the mind, and render man a prey to every morbid agent. An intelligent writer in a work entitled, "*The Present State of Turkey*," holds the following language on this subject, when speaking of the cause of the plague. "The insalubrious state of a country, and the impurity of the atmosphere, seem best to account for the existence or introduction of the plague: but in inhabited countries, these physical evils are chiefly induced from moral causes. If the error of Agamemnon, the crime of a moment, drew down upon the Grecian army the vengeance of Apollo; if the sin of David brought pestilence upon the innocent house of Israel—how much more must the despotism of the Turkish government, a system at which nature revolts, excite the anger of heaven, and promote the infliction of augmented evil! On every page of Ottoman history, is inscribed this instructive lesson, that not only the moral happiness of a nation is diminished, but even the sources of physical blessings are contaminated, in exact proportion to the injustice of its political institutions. 'General health (says Raimond,) is inconsistent with extreme servitude.' Under a tyrannical or vitiated government, the culture of the earth is in a great degree neglected, the morasses are undrained, and the stagnant waters generate and diffuse corruption, the labour of the people is limited to procure only the necessary means of supporting animal life: their food is insufficient and unwholesome; their cottages are low and humid; their habitations are lurking places, chosen with no regard to healthiness of situation. It is in such countries that we find the plague and leprosy, with all their

horrible concomitants, raised to an eminence superior even to that of the tyrant, and subjecting alike to their sway the oppressor and the oppressed. In Greece, while its inhabitants breathed freedom, the plague was transient or unknown. In Egypt, while wisdom tempered the harshness of its laws, the wind of the desert blew only temporary destruction; and though the periodical inundations of the Nile covered the whole surface of its valley, yet human industry, stimulated and encouraged by a provident government, drew fatness from its luxuriance, but averted the noxious effects of its exhalations. It has been calculated, that during the existence of the Roman republic, a mean period of twenty-one years elapsed between each return of those epidemical distempers, which from their general diffusion over Italy and Europe, and their fatal consequences, may in some degree be denominated pestilential. From Augustus Cæsar to the year of Christ 1480, there were ninety-seven plagues; but the interval between each is reduced to the term of seventeen years. Since that period, the progress of civilization among the states of Europe, has re-established a barrier to epidemical disorders. The period in the history of Europe, the most fertile in calamities, lies between the years 1040, and 1480, and is marked with thirty-two destructive plagues: their common interval is twelve years. But in the fourteenth century, the age when disorder and distress had attained their greatest height, Europe had been wasted with fourteen fatal and almost universal plagues. In the two next succeeding centuries, governments began to re-assume their vigour, and removed to a greater distance this common curse of the human race, the scourge of tyranny in governors, no less than of slavish submission in the people. In the seventeenth century, the plague became still less frequent, until at length it has entirely disappeared from civilized and Christian Europe: and if Europeans still possess wisdom and virtue sufficient to secure their liberties on a solid basis, we may confidently hope, that its ravages will be eternally removed from our borders."

“ Hygieia herself, is but the hand-maid of liberty. The sacrifices which she requires, the incense whose fragrance she most delights in, is the happiness of her votaries ; the gaiety of youth, the temperate cheerfulness of manhood, and the serene comforts of declining life. It is liberty alone, whose breath disperses the noxious vapours, whose smile dispels contagions from the atmosphere, who spreads her plentiful table, and invites her children to that temperate luxury, that semi-epicurism, which best contributes to habitual cheerfulness, and is the acknowledged preventive of infection and disease.”*

The instructive and encouraging lesson is here taught, that mankind best promote their moral and physical happiness by attending to the general laws of creation—equal division of rights—uprightness of purpose, and pure and elevated sentiments.

If we follow the geographer and the traveller through the different climates which they describe, we shall find the agents of health and pleasure often undergo such modifications and changes as to become the instruments of disease and destruction. The same sun which pours its luminous and heated torrents on the deserts of Africa and Arabia, leaving not a shrub for the eye to repose on, or a drop of water to moisten the tongue of the wandering robber, or the weary pilgrim, the only mortals who dare traverse these dreary wastes—this same sun, which drinks up pestilence from the plains of Egypt and India, and the marshes of Java and Sumatra, becomes in more favoured regions the very support of life, and the spirit of vegetable beauty, which there throws over all its varied livery. The air which in the Samiel sweeps across the desert, enveloping in its sandy veil both man and beast, and blasting all, like the destroying angel, or which wafts the slower poison of miasmata, embracing whole regions in its destructive range, does again bring with it the renovating principles of health, and strength, and gladness.

* Thornton, Vol. II. p. 218, et seq.

To trace, with success, the operation of these general and widely diffused causes, we must take the traveller as our guide, while he points out the relative situations, elevations and exposures of countries, districts and towns: in fine, we must study medical topography, so closely allied to, if not forming a component part of general pathology.

In the torrid zone we find the erratic Arab, exposed from infancy to a burning sun, assume a physiological state corresponding to his peculiar situation. Of a rigid fibre, blunted sensibility, and with a small supply of fluids, he braves that heat which could not be tolerated by an European, and which, united to moisture and exhalation from putrefied vegetable matter, proves so fatal to the inhabitants of India and the islands in the East, and to the natives and settlers on the rivers Congo and Senegal in Western Africa. Egypt, between nearly the same parallels of latitude as the great desert, wears a very different aspect. The Nile, which traverses its whole length, and brings it, in its overflowing, fertility and wealth, leaves on its recession, the seeds of death, the destructive plague, with its suitable attendants, leprosy, dysentery, and ophthalmia: and we are convinced that however much the present inhabitants may have degenerated from their ancestors in civil polity, arts and science, the country itself is nearly in the same state as in the time of Pharoah, when the plague of frogs, the plague of lice, and the plague of flies, murrain, boils and blains, were brought on it by the hands of Moses and Aaron.* This ill-fated land, still in a measure the granary of the Levant, is also the nursery of the plague; and the same vessels which carry the staff of life to the Turkish capital and the cities of Asia Minor, are fraught with pestilence so virulent, that the Egyptian has the melancholy distinction of being called the mother plague.†

* Clark's Travels.

† We are well aware of the different views entertained by Volney, respecting the Egyptian plague, which he gravely supposes is brought from Constantinople or Smyrna: but we are supported in our position by the almost concurrent testimony of travellers in that country. The transmis-

If we extend our view from Africa to middle and southern Asia, we hear of an addition to the usual dread catalogue of diseases in the cholera morbus, springing up within a few years, or at last acquiring such malignancy as to number millions for its victims within this short period. Unrestricted in its range, it prevails from the Isle of France and the Gulf of Persia to the Philippine Isles, and, unlike the ordinary diseases of these climates, it proves most destructive to the native population. By an attentive study of this cholera we may hope for rich additions to our pathological knowledge, to be afterwards usefully applied to the milder forms of the disease among ourselves.

But if countries under the same latitude differ so widely in their climate and diseases, there is scarcely less obvious difference in these respects in the same country at different periods. The cradle of mankind, the land flowing with milk and honey, once covered with a crowded population, is now almost a desert: the holy city in ruins is governed by a few insolent Turkish soldiers—and the country wasted and its productions withered, is the domain of the lawless Arab.

Greece, with the loss of her liberty and the ruin of her cities, has an altered climate. Spots which were once decorated with temples and groves to Hygieia and Esculapius, are now shunned as foci of disease. Patræ, on the north-west coast of the Peloponnesus, was visited by Tyro the freedman and friend of Cicero on account of its salubrity; Patras, the same town, now suffers from intermittent and contagious fevers.*

In Italy the changes have been equally melancholy. The ancient Latium with her hundred cities—the present Campagna di Roma, is now a waste, tenanted by a few wretched peasantry, who crowd every summer the hospitals of Rome; and the traveller is afraid of sleeping in it a single night,

sion of the plague from one country to another is a more problematical point, but one which cannot with propriety be discussed on this occasion.

* Hobhouse's Albania.

lest he fall a victim to the *malaria* or pestilential exhalations from the soil. Ostia, once a flourishing city, and the seaport of Rome, has now but two or three miserable houses; and Ardea, which at one period was able to resist Rome and send out colonies, has now a population of only six hundred inhabitants.

How changed the face of Magna Græcia, to whose inhabitants Rome herself was indebted for the elements of science, the commencement of her poetry, the foundation of her stage!* How few and melancholy the remains of the numerous cities and noble buildings which adorned the coast of the Tyrrhæan sea, in which Pythagoras taught the lessons of wisdom, and orators dazzled by the splendour of eloquence! The once flourishing Pæstum, the residence of the Sybarites, enriched by foreign commerce, and embellished by all that art and luxury could devise, after being brought under Roman dominion, and subsequently a prey to the Saracens and Normans, was for a time totally lost to the world. Its discovery now presents to us the remains of three temples, rising in solitary grandeur, with no sound save the dashing of the waves against the desert shore, or the rustling of lizards through the leaves overspreading their floors, or the flight of birds, which occasionally nestle on the ruined pediment. The myrtle still grows luxuriantly in the surrounding country, but the priests and votaries of Venus, of Ceres, and of Neptune, are only known in story. We see no longer the semi-annual blooming rose;† in vain we seek for the clear fountain to quench our thirst!—all is desolation!—all breathes pestilence!

Lancisi informs us that the marshes of Italy are much enlarged and in greater number than in past ages; and, that once celebrated cities have been covered by the water, and so completely buried that the names of many of them have been lost. In the time of Vitruvius, Aquileia on the Adriatic Gulf, was drained, and was not considered an insalubrious residence; whereas Lancisi, who wrote at the commence-

* Tirabaschi.

† Biferique rosaria Pæsti.

ment of the last century, says, that Aquileia, in ancient times so flourishing and renowned, had been entirely destroyed, and that its destruction was not referable to wars or conquest, but to the corrupt air arising from its marshes.

Taking history, however, as our guide, we discover three distinct periods during which the face of Italy, and consequently its climate, has undergone great changes. In the first, when the Romans had attained to the height of their grandeur and dominion, the country was like an extensive garden, and consequently healthy. In the second, after the repeated irruptions of the barbarians and the dismemberment of the empire, her cities and villas were sacked and burnt, and her population wasted by wars, famine and pestilence, to such a degree, that, as we are informed by the accurate and learned Muratori, in the eighth century, a considerable part of Italy was covered with forests and marshes of great extent, and infested with wolves and other wild beasts. The third period, beginning with the revival of letters and commerce, and the improvement in agriculture, down to the present time, shows a great amelioration in the state of the country; and districts are now in a high state of cultivation which, in the middle ages, were abandoned, and which, prior to that time, had been, as ancient writers represent, very fertile. Muratori gives a forcible instance of this in a description of the city of Modena by an author of the tenth century.

Nor were such changes confined to Italy alone. Other countries have presented similar examples of desolation induced by the same causes; and Africa has not since recovered from the shock occasioned by the invasion of the Vandals, and the wars between them and Belisarius in the reign of Justinian, in which the loss of lives was estimated by Procopius, a cotemporary writer, at not less than five millions.*

In passing from the review of the past to the consideration of the present, we see Cisalpine and Cispadan Gaul,

* Robertson's Charles V.

the present kingdom of Lombardy, with a numerous and intelligent population, constituting the only people in Italy calculated to redeem her former name and support her independence, has widespreading sources of disease in the valleys of the Po and its tributary waters. That country is annually harassed by the same class of fevers that afflict the eastern sections of our Southern States, and which have their origin in the rice grounds and inundations. So alarming had the evil become, that the governments of Piedmont and the Milanese forbade by express laws the culture of rice within a certain distance of the great cities; and it is a subject meriting serious consideration how far like precautions ought to be adopted against the neglected or faulty cultivation in the vicinity of our own cities, particularly those to the south.

Causes similar to those just enumerated operate with still greater virulence in Hungary, especially in that part of the country on either side of the Danube, the Drave and the Save, low, marshy, and intersected by numerous streamlets, which occasionally spread out into lakes or are lost in bogs and swamps. Hence Hungary is so proverbially sickly as to be called the grave of the Germans.

Though the climate of Italy have deteriorated, that of Germany has improved with the increasing civilization of her inhabitants. The huts and caves as described by Tacitus, have been superseded by cities and castles, and the sun now warms and fertilizes the soil, which in that writer's time was covered by forests and stagnant waters.

The history of the Batavians, originally a German tribe, unfolds a series of efforts and continued struggles against climate and situation, not less interesting to the medical than to the moral philosopher. We see a hardy and warlike people, inhabiting a barren soil, almost immersed in water, and with an incumbent atmosphere, the most unfriendly to human comfort, resist with success the Roman legions, and in place of slaves becoming allies; encroaching on the ocean, and erecting barriers to restrain its fury, giving new channels to the rivers, which are thus made to

fertilize a naturally arid soil, and converting, as it were, the elements into so many sources of wealth. Modern history bears testimony no less strong to their heroic exertions in the cause of liberty, and to their final victory over Spain, though commanding the united resources of the old and new world. But the changes in the physical state of the country, are not more remarkable than that of the inhabitants. From being active and athletic, prompt to repel the invader, and fearless of all personal risks, they are now slow and heavy in their movements, labouring under the very fulness of health, and little mindful of national independence, if the effort to support it jeopardize that wealth which they seek with an insatiable avidity.

In giving this account of the general health of the inhabitants, we must not omit noticing some too remarkable exceptions. Pringle bears testimony which cannot be mistaken to the insalubrity of many parts, and particularly of Zealand, where fevers frequently prevail with a malignancy equal to the jungle fevers of India and those of Batavia.

In thus rapidly glancing at different climates as causes of disease, we need not restrict ourselves to febrile affections, or those more usually attendant on open and level countries. Mountainous districts have also their peculiar disorders, which, if less fatal, are equally distressing to the sufferer, and occasionally more loathsome to his friends. The goitre, or bronchocele, prevails over a much greater extent and variety of country, than is generally imagined. It may be traced from the Valais in Switzerland, along the Alpine, and Carpathian Ridges, on to the Black Sea, and westward through the south of France, in the Cevennes mountains of Languedoc and the Pyrennees : northward on to the Vosges and Soissonnais. It is also found in the island of Sumatra, and other places in the eastern hemisphere.

Much might be done to an elucidation of the pathology of this disease, by an inquiry into the circumstances connected with its gradual disappearance from a particular portion of country, as has occurred in Pittsburgh and its vicinity.

In perusing the history of wars between nations, and their military expeditions, we become still more sensible of the necessity of a knowledge of medical geography, and the policy of giving to a physician a voice in the councils of his country, that he may caution her chiefs against assailing an enemy through districts where the health of the army will be sacrificed, and the objects of the expedition frustrated; or, point out the means sanctioned by experience for warding off disease, and lessening that mortality which cannot be entirely prevented.

Ancient history informs us of the mad attempt of Cambyzes against Ethiopia, and the destruction of his army in her sands. In the northern part of the same country, was the grand armament of Charles V. nearly destroyed, by his obstinacy in approaching the coast at an improper season. The records of our own times abound in similar errors. The invasion of Egypt and St. Domingo, by the French republic—the ill fated expedition of the British to the island of Walcheren—and the memorable invasion of Russia by Napoleon, unawed by the ill success of the Swedish Charles a century before, are among the many proofs of the impuissance of man in contending against nature.

To study medical topography to any advantage we must be acquainted with the nature and differences of soils, which presupposes some elementary notions in mineralogy and geology. Two districts of country may enjoy the same medium of temperature and receive the same quantity of rain, yet the one be healthy and the other directly the reverse, according to the absorbing powers of the soil, or the nature of the rocky strata beneath: hence the qualifying remarks that have been made of the quantity of rain necessary to render a soil fertile, apply with equal force to the healthfulness or sickness of the corresponding portion of country. Thus, in nearly the same parallel of latitude in what is called the valley of the Po, we are told that thirty-six inches of water fall at Milan, whilst sixty-nine fall at Udine, seventy-five at Secale, and one hundred and forty-one at Tolmezzo—places in the Venetian territory. Now if

there was the same quantity of argil in the land at Tolmezzo as in that of Milan, it is very evident, that, not only grain could not grow in it, but that it must be much more unhealthy, from the greater proportion of water which would rest on or near the surface.

This subject deserves additional interest from the opinions founded on tolerably plausible data, lately advanced by a Flemish professor, Van Aenvanck of Louvain, that the cause of paludal or intermittent fevers "is owing to a vice inherent in the soil itself, and that of all earths the argillaceous, when in a state of moisture from its great affinity for oxygen, is most apt to deteriorate the atmosphere and cause fever."

Dr. Chisholm, in his late work on the medical topography of the West Indies, mentions facts confirmatory of this theory. Among others, he informs us, that the soil of Antigua is very argillaceous, and that the moisture and consequently the comparative great cold produce fevers similar to those having their origin in miasmata, though in the neighbourhood of St. John's, where the above effects are produced, there are no marshes.

Associated with this study will be that of vegetable geography, the importance and utility of which have been fully established by the labours of the illustrious Humboldt. The local nature of the soil may also be ascertained with considerable approximation to the truth by an attention to the different plants which are its native growth. Thus a gravelly and stony soil is evidenced by an abundance of the vipers' bugloss, (*onosma echinodes*) greater hound's tongue, (*cynoglossum officinale*) mullein, (*verbascum thapsus*). Argil is manifested by plaitain, (*plantago media*) colt's foot, (*tussilago farfara*) and endive or succory, (*cichorium intybus*). The equisetum or horsetail is known as a sign of water being beneath the superior stratum of cultivatable soil.* Indications like these are not to be overlooked, or their importance slighted by the observing physician, who

* Delle Terre Coltivabili, &c.—*Del Conte Filippo Re.*

will thereby be enabled frequently to discover causes of disease which do not meet the vulgar eye, and to suggest to the agriculturist the means for removal, or diminishing their violence.

These, joined to meteorological observations, may prepare us for giving a correct account of our own climate, by distinguishing the fixed from the occasional or removable causes of disease, and also aid us in forming a more correct estimate of the probable benefits which our patient may derive from visiting a foreign country. In giving our advice on this last point, we ought to specify the particular district or spot—having been first duly informed of its distance from, or vicinity to, the sea and mountains, its elevation, the prevailing winds, the range of the thermometer and the medium temperature, which two last are the most important considerations. A want of precision in this respect has been productive of many errors, which have been followed by the most unhappy consequences. France has such a fine climate, says a London citizen to his family, we will go and spend the winter in Paris and the summer in Normandy. After a residence of a few months in the French capital, he is mortified and astonished to find the transitions of weather nearly as great as at home, with the additional inconveniencies of being less protected from them, by the structure and arrangement of the houses. Others wander over the south of France, fondly imagining that as they are in the region recommended to them, all the benefits must be derived which they could hardly expect from location at the most favoured spot. Montpellier has been in the mouth of every traveller and writer, as a most desirable residence for the phthisical patient, yet the physicians of that town send away those of the inhabitants suffering under pulmonary disorders.

In Italy, with her bright cerulean sky, we find a wonderful difference in the different districts—even at short distances. A winter residence at Florence, exposed as it is to the chill, piercing winds from the Appenines, is peculiarly unfriendly to those labouring under pulmonary dis-

ease; while Pisa, at the distance of less than fifty miles, is one of the most favoured spots in Europe, during the same period, though very obnoxious to paludal fevers in the summer and autumnal months. Such varieties of climate within a limited range are by no means uncommon. The European exhausted by intermittent fever at Canton is sent to Macao, a hundred miles distant, on the sea coast, where he rapidly recovers his health and strength; but is not a little surprised to find so many of the inhabitants victims to catarrhs and every grade of pulmonary affections, and he naturally inquires of his physician, with some feelings of alarm, whether he is safe in such a place.

The prevailing winds are either causes of disease, or agents of hygiene, according as they sweep over the sea, mountains, marshes and sandy or cultivated districts. Hence, the observations made in one country on the effects of the wind from any particular quarter, are frequently inapplicable in another country. In southern Europe, the wind from the south brings rain and moisture: in middle Africa, it is accompanied by cold and dryness; and in Egypt the northerly wind has for its attendants clouds and rain. Want of attention to the situation of Judea, has prevented many from understanding that passage in St. Luke's gospel, where our Saviour, reproaching the hypocrites, says: "when ye see a cloud rise out of the west, straightway ye say, there cometh a shower, and it is so; and when ye see the south wind blow, ye say, there will be heat, and it cometh to pass." Chap. xii. v. 54, 55.

In looking at the map, these sentences receive an easy explanation. The south wind coming over a great extent of country, (including Arabia,) constantly exposed to the sun's rays, must be very warm, and that from the Mediterranean sea on the west, will of course, bring clouds and showers.

The great father of medicine was fully aware of the importance of attention to medical topography, when he recommends it as the first care of a physician on his arrival in a strange city, to examine its situation and exposure as

regards the winds, and also, to observe the particular nature of the waters in common use.

Happy had it been for mankind, if the founders of cities had been more attentive to the selection of sites, in reference to health, in place of yielding to personal vanity, or the prospect of commercial advantage. The Dutch, accustomed to having their cities intersected by canals, without any serious disadvantage resulting in their own northern latitudes, most thoughtlessly adopted a similar plan in building Batavia, exposed as it is to a tropical sun, and deluged during the months of June and July, by heavy rains. The consequence of this ignorance, has been a waste of lives exceeding in number that of all those who have perished by the sword, during their long and bloody wars, carried on in that quarter of the globe. The neighbouring island of Sumatra has been, in proportion to the settlers, no less fatal to Europeans; and Bencoolen, an English, and Podang, a Dutch settlement, have made thousands deplore that spirit of cupidity, which prompted the first settlers to sacrifice all future considerations of comfort and health to present gain.

As might naturally be expected, our own country presents many instances of this short sighted policy. Petersburg in Virginia, is built on the right bank of the Appomatox river, at a place partially overflowed every year, and in part bordered with marshes. These combined causes give out miasmata, producing those bilious remittent fevers, which rarely fail every autumn to scourge the inhabitants, and cut off the healthiest and most robust. On this account the enterprising merchant, who ventures his life in such a place, does it with the hope of being able to realize a sufficiency to live in affluence, or to obtain capital to trade with success, in a more healthful spot. There is not here even the pretext of superior commercial benefits, for having selected such a site. Vessels of a small draught of water only, can come up to the town; whereas, a few miles lower down, at the junction of the rivers James and

Appomatox, is a place where all the advantages of health and commerce might have been combined.

It is not my intention to excite vain regrets, by pointing out these fatal errors ; but, to render them useful lessons for the guidance of those enterprizing men, who each year, lay the foundation for new towns throughout the vast extent of our country ; and who might be made to pause, ere they jeopardize their own temporal happiness, and that of their posterity for centuries to come.

But it is not the consideration of causes only, or ætiology, which is to occupy our attention and call for the exclusive display of research and ingenuity. The patient, laborious and unremitted inquiry into the symptoms, signs and effects of diseases is so essentially requisite for obtaining well grounded reputation as a medical philosopher and successful practitioner, that genius cannot dispense with it, nor learning supply its place. Some few there are, indeed, with rare natural endowments, who seem to arrive intuitively, as it were, at results, without being able to trace clearly in their own minds, or explain to the satisfaction of others, the steps of induction. They are, to the rest of the world, as the dumb man, who, with a mind teeming with the stores of imagination, and memory, must keep them to himself for want of the means of imparting them. His is the truly useful talent, which enables its possessor, with patience of thought, to present each individual fact to our observance, to discriminate between the occasional and the necessary conjunction ; and to throw the whole into such strong relief, as to have it ever present to our eyes, a standard, by which we may discover resemblances and detect differences. It is this which has constituted the great merit of our descriptive writers from Hippocrates, who may be said to have given us the anatomy of disease, down to Sydenham, Huxham and Cleghorn ; and it is only by marching in their steps, that we can ever hope to attain a portion of their fame, and leave behind monuments of usefulness. Unhappily these great masters of our art have been too often overlooked, and he who in later days has culled from

them most largely, has obtained the credit of originality and genius, and subjected his successor, who merely draws from the same source, to the charge of plagiarism.

Preparatory to the study of the pathognomonic signs, ought to be that of the physiognomonic, in the original meaning of the word: whereby we are to understand the external characters or signs in nature, whether animate or inanimate. Though we may not insist on a study of all the signs in the mineral, vegetable and animal kingdoms as indispensable to the success of our pursuit, we ought, however, to encourage those who may feel inclined to allot a portion of their time to such attainments, very sure that the habit of patient examination of the different forms of minerals, and exterior characters of plants and animals, will be an excellent preparation for a more accurate observation of that great variety of expression in the human face, at once an index of the feelings and passions, healthful and diseased. Every object in nature bears on its exterior certain marks, indicative of its internal qualities and properties; and complex as is the structure of the human frame, it also gives external signs of its condition.

We ought, first, to accustom ourselves to the observation of man in a healthy or physiological state; the coincidences between certain corporeal developments, motions, attitudes, gestures, and the performance of particular functions, and the expression of feelings, active and passionate. As part of the general system of physiognomy, the doctrines of Gall and Spurzheim are entitled to notice.

This knowledge fully attained, by an examination of varieties of character and temperaments, and even national differences, we may then habituate ourselves to reading the diseased and pathological condition, with less risk of confounding the natural and fixed with the occasional and morbid signs. There are few physicians with even the most limited experience, who have not met with cases of disease, which on looking at the patient they pronounced mortal, and that without being able to assign the particular reasons for their opinion, other than an internal belief founded on

the peculiar physiognomical expression. The necessity of a quick perception of these signs will be placed in clearer light by the fact, that such knowledge affords the only means of determining whether we are to send a *recipe* to the apothecary, or give our advice to his friends, for the removal of those causes of mental irritation which have produced in the invalid the present complaint. Even in the progress of a disease we shall be frequently baffled in our remedial measures, if we do not watch the patient's state of mind, evinced by his countenance. Zimmerman among many others gives us strong illustrations of this principle in his work on Dysentery. It is related of Dubois of Paris, at this moment distinguished as a surgeon, accoucheur and physician, that in his younger days he was in the habit of observing minutely the countenances of all those with whom he had any intercourse, and even of those who passed him in the streets, so that afterwards, by a long study of this kind, he could tell pretty accurately their several dispositions and disorders; a kind of knowledge which subsequently helped to give him vogue in the practice of his profession.

The presence of worms, more especially of *tænia*, may be suspected from that peculiarly anxious look, difficult to define, but readily recognizable, after having been once met with. How often may a paroxysm of insanity be warded off, or entirely prevented, by the physician or experienced attendant, having his fears excited on seeing the shining and suffused eye and haggard look, even though there be no great disturbance of the natural and vital functions.

The variety of attitudes and gestures assumed by man, when actuated by different passions, has been a fruitful theme with the moral philosopher: nor is this study less useful or instructive to understanding his physical condition. Certain postures, which are often mistaken as the effect of indolence, affectation or early habits, have in reality their origin in languor from muscular debility, or uneasiness from some internal irritation. Restlessness and irri-

tability, are said to be the accompaniments of genius : they are equally so of the dyspeptic and hypochondriac invalid.

While thus noting the external characters of health and disease, of signs indicative of inward bodily disturbance, and mental agitation, we shall, perhaps, find ourselves gradually led on to the study of the passions, which may be called the poetical domain of our profession, ornamented with fairy landscape, alternately lighted by the rays of hope, joy and ambition ; and darkened by the clouds of fear, melancholy and envy, through which anger and infuriate hate occasionally dart their lurid gleam.

This study becomes more complex and necessary, in proportion to the advancement in civilization, and excessive refinement of mankind. The mind modifying not less than modified, ought never for a moment to be lost sight of by the enlightened physician, who both traces to it the agency of disease, and extracts from it the means of relief. Unhappily the study of its operations has been shrouded in mystical reasonings and obscure phraseology, calculated rather to bewilder than to guide, to deter than invite our approach. Let us hope, however, that the spirit of analysis and demonstration, which guides the inquiries of the present age, will introduce more simplicity of outline and accuracy of detail, and enable us to discriminate between inherent *propensities*, which, misdirected or uncontrolled, constitute bad passions ; and *sentiments*, to the cultivation of which, man owes his elevation of character, his moral and social feelings ; and finally, *intellect*, by which he can go on progressively improving, and render all nature subservient to his views.

Though much may be learned by an attentive study of symptoms, in helping us to a knowledge of the seat of disease, yet this part of pathology must ever mainly depend for its elucidation on *post mortem* examinations, which, prosecuted with this view, have received the title of morbid or pathological anatomy. This has for some time past, been viewed as a subject of primary importance, and actually oc-

cupies the attention of some of the most learned and skilful in the profession.

Now is not the time to inquire into the full measure of its utility, or the probable fallacies in the usual mode of conducting it; but we may safely infer, that notwithstanding the cavils of ignorance and conceit—the course adopted by a Morgagni and a Baillie, may be prosecuted by their successors with beneficial results. If we are still to look to Europe for any portion of medical instruction, it is in this particular branch, which must ever be studied most advantageously in those extensive hospitals, a refuge and a lodging for a redundant population, suffering from all the combined ills of poverty, disease and vice.

I have now, gentlemen, given you a brief outline of the range of observation and inquiry, in which the pathologist may legitimately indulge. It shall be my endeavour as we advance, if not to fill it up, at least to present such sketches as may aid you in your future efforts to accomplish so desirable an end.

ART. II. *Remarks on some of the Nervous Functions: more particularly on those of Respiration; illustrated by Experiments.* By J. P. HOPKINSON, M. D.

“Causa latet, vis est notissima.”*

Among the physiological inquiries of the present day, I think are eminently to be distinguished for justness, no less than for acuteness of observation, some new and interesting views lately published by Mr. Charles Bell, of London, on the nerves, more particularly those of the face: a repetition of his experiments as far as laid in my power, forms the subject of this paper.

As Mr. Bell's doctrine will be more fully and satisfacto-

* Originally submitted as an inaugural dissertation, (University of Pennsylvania.)

rily developed in the course of this inquiry, I shall not stop here to enter into its details.

It may be sufficient for my purpose merely to observe, that he considers any part furnished with two or more nerves, and these from different origins, as possessing as many distinct offices as there may be sets of nerves, each set exercising its peculiar powers. Thus in the face, on which are spread branches from the fifth pair, and also from the portio dura, the respective duties of these two nerves are totally distinct from each other, and either being divided does in nowise interfere with the functions of the other.

As nerves of sensibility and muscular motion, Mr. Bell enumerates "all the nerves of the spine, the tenth or sub-occipital, and the fifth pair of nerves;" which agree with each other in the following particulars, viz.—"They have all double origins—they have all ganglia on one of their roots—they go out laterally to certain divisions of the body—they do not interfere to unite the divisions of the frame—they are all muscular nerves, and the sources of the common sensibility of the surface of the body," &c. Now there is no doubt, an anatomical examination will prove the above named nerves to correspond with each other in those particulars, for we observe the fifth pair, which, alone, of this class, arises directly from the brain, characterised by the ganglion of Gasser, as it is by the double origin often existing on their roots, which circumstances (at least the first) are found on no other nerves arising within the cranium—and for their great sensibility I refer to my subsequent experiments, showing them no less remarkable. The sub-occipital nerves offer nothing worthy of particular notice: they communicate with the ninth pair, and with the superior ganglion of the sympathetic, and are finally spent upon the small muscles moving the head, &c. On the nerves of the spine it is quite unnecessary to dwell: their course and distribution are uniform, all their origins are similar, and their functions have nothing peculiar.

There is, however, another class denominated respiratory nerves, whose sympathies are with the action of respiration, which I fear will not bear so minute an anatomical scrutiny. The characteristics of this class are stated to be as follows: "They do not arise by double roots—they have no ganglion on their origin—they come off from the medulla oblongata, and the upper part of the spinal marrow," &c. They are "the par vagum—the portio dura of the seventh pair—the spinal accessory of Willis—the phrenic and the external respiratory nerves." What is meant by this last term I shall explain hereafter.

To begin with the par vagum: they seem most decidedly essential to the healthy action of the lungs, as evinced no less by their anatomical distribution than by the effects of their division. Yet it is evident, that whatever agency the lungs do exert in converting venous into arterial blood, we are not to look for it in the eighth pair, as after decapitation, and after all the vital actions have ceased, artificial respiration is sufficient to form arterial blood, and by restoring the action of the heart to maintain the circulation.* In addition to this distribution to the lungs, their final termination in some of the abdominal viscera would appear to give to the same nerves two distinct functions,—for the experiments of Wilson, Philip and others, have proved them necessary to the process of digestion—a division of only one of them causing vomiting, imperfect digestion and sometimes death. Galvanism, however, is said to restore their action. Through the agency of this connexion probably, are performed the motions of coughing, sneezing, and the hiccough, often a fatal symptom. There is undoubtedly something very curious in these simple operations of nature: for instance, an irritating substance applied to the Schneiderian membrane of the nose immediately causes that peculiar action which we term sneezing, the copious defluxion from the eyes, and convulsive movements in the diaphragm and lungs, &c., and a

* Of course, but for a very limited time.

whole system is thus set in action, simply by an irritation commenced on a small, circumscribed surface. This circumstance, I am induced to believe, gives a striking corroboration to an opinion hereafter to be expressed concerning the proximate cause of respiration in an infant at birth. Why this double office in one nerve we cannot at present say, though to it is referred the sympathy well known to exist between the lungs and stomach, and probably the success of emesis in pulmonary complaints. But how then happens it that in the final stage of phthisis pulmonalis, one of these functions can be removed and not interfere with the operations of the other? that the miserable sufferer in the course of a tedious and protracted illness (nearly all of that vital organ, the seat of this disease, being destroyed) retains his stomach unimpaired, not to say increased in its digestive powers, sustaining his spirits, and cherishing a fallacious hope on the brink of the grave?

The portio dura, or nervus communicans facialis, sometimes justly termed the lesser sympathetic, is without doubt most intimately connected with, and under the influence of respiration—for to this must we look for expression of the countenance, and probably too, as the immediate agent in producing that peculiar blush on the cheeks accompanying hectic fever and pulmonary complaints. Of this nerve it is somewhat curious that it should in so many places be connected with the fifth pair. I have lately seen, in a preparation made by a most skilful anatomist, the adjunct professor of anatomy in this university, a very large branch coming directly from the inferior maxillary nerve, to join the portio dura, just emerging from behind the lower jaw,—and as it has been noticed by Sabatier and some other anatomists, I take this opportunity of mentioning the fact as connected with a circumstance in my experiments in all probability arising from it. I would here remark that Professor Monro, of Edinburgh, submitted such nerves as are formed by the union of branches from different trunks to the powers of a microscope—enlarging the diameters one hundred and forty-six times, and found the fibres inva-

riably to be crossed and intermingled in every possible way, so that each branch afterwards sent off was composed of fibres from each of the nerves so uniting—and hence I suppose that a branch from the fifth pair, uniting with one from the portio dura, the powers of both are conjoined in all the smaller ramifications proceeding therefrom.

The accessory nerve of Willis, arises within the spinal column, and runs some distance before it reaches the cranium, whence it is distributed to the sterno-mastoid and trapezius muscles, &c. It is true, there is no ganglion on its root, nor has it a double origin, and therefore it cannot be a nerve of sensibility and muscular motion, according to the definition. Yet this nerve offers some objections to being classed among the nerves of respiration, though Mr. Bell declares its division interrupts the respiratory action of the muscles supplied by it, which I have not myself put to the proof of experiment.

The phrenic nerve, I must confess, presents considerable difficulties to the placing it among this class, so much so, that Mr. Bell passes it over. “As the only nerve of the system known as a respiratory nerve, its origin, course and destination, are familiar to every one, &c.” It has neither the mode, nor place of origin consigned to this order: on the contrary, it comes directly from the nerves of muscular motion and sensibility—and why, therefore, does it possess properties differing from those of the arm, as they are all from the same source? This may justly be opposed to any importance attached to this class, as characterized by locality of primary source. But I do not pretend to maintain, nor shall I attempt to explain it: suffice it to say, these nerves are proved to perform duties subservient to the purposes of respiration, since a division of them stops the motions of the diaphragm: in addition to which fact, I may add, from my own observation, that, on opening the thorax, the lungs being in a collapsed state, the gaspings of the animal were invariably attended with a simultaneous convulsive movement of the diaphragm—and irritating an exposed phrenic nerve, as is well known, causes a similar

contraction of that muscle. These are facts, which certainly demand some attention, in considering the correctness of my views. But one thing is rendered more probable, not to say certain, by this circumstance, which I am led to notice here, which is, that the nerves of this class do not continue their actions, unless respiration, or an attempt at it, is actually going on at the time, and this adds much to the plausibility of my inferences.

The last enumerated, or "external respiratory nerve," labours under no less a difficulty than the preceding, inasmuch as it is derived immediately from the cervical nerves, from whence it is spent on the thorax. In describing this nerve, Mr. Bell in his *Anatomy*, says, "it has the same source with the phrenic nerve—it is connected with that internal nerve, at its origin, it is separated from the phrenic by a very small portion of the scalenus. Its course is through the axilla, passing across the nerves of the arm—it is distributed to the muscles on the side of the chest, and combines them into a class with the internal respiratory muscles," &c. Without, however, contending for the necessary importance of origin, it is sufficient to know, that Mr. Bell states, that its division stops the motions of the chest,*—whence we infer, a fracture high up in the neck is fatal, from the circumstance of these nerves being concerned, and not as heretofore supposed, *exclusively from the phrenic* and other nerves, going from the spine to these parts, being cut off—for it must be observed, sensibility only, without any reference whatever to respiration, is conceded to the intercostal nerves.

What constitutes this similarity of function in a class so numerous, and as I have shown, far from agreeing in place and manner of origin, can no more be explained, and as I think, no more be doubted, than the astonishing effects of sympathy, so often exemplified both in health and disease. We are taught, that diseases of the uterus may and do occasion derangements in many of the abdominal viscera, and that affections of these last, give rise to

* This I have not tried.

asthma and other diseases of the lungs, all of which may be removed by only relieving the primary cause. With equal inability to comprehend the "*modus operandi*," do we not daily witness the almost instantaneous transfer of gout from one foot to the other, or from the same part to the stomach?—do we not see a disease of the parotid gland removed to the scrotum or mamma—affections of the brain deranging the stomach, and those again of the stomach, the whole system?—What indeed can this be termed, except a sympathy of these nerves with respiration? Thus, to accomplish the ends of nature, is a beautiful system organized and connected under the same laws—and its operations conducted in the most perfect harmony. Observation sanctions the assertion, that the sympathy existing between the eyes and nose, arises from the connexions of the fifth pair with these parts; though we cannot say why all the other branches of the same nerve do not, at the same time, participate in that sympathy—since this nerve has a very diversified, as well as extended distribution, fulfilling many important duties, and supplying with its various branches, the frontal sinus, sphenoidal cells, muscles of the eye, the lachrymal and salivary glands, palate, gums, teeth, tongue, &c. besides its various connexions with other nerves.

The muscles to which the nerves of respiration go, (though very minutely,) are as yet imperfect—for it is found that sensibility, and also muscular motion, are not derived from these nerves, nor is any part paralyzed if they be cut, though we are well assured, that these parts do possess sensibility, and that they are subject to the will: hence, we must look to some other source for these qualities. To answer this end, there are nerves of a different order, sending ramifications to parts already abundantly supplied with nerves, and as will be shown hereafter, giving additional powers to them.*

Without doubt, the sceptical anatomist may ask, what have the temporal, or orbiculares oculi muscles, to do with

* Richerand, I find, notices this difference in nervous influence, as exemplified in the nose. Thus, in catarrh sensibility is acute, but the smelling powers lost.

respiration, for the portio dura sends many branches to these parts? With equal reason, he adds, why so large a branch of a respiratory nerve to the ear; or in what way; in fine, is the forehead concerned in the breathings of an animal? &c. These are points, which if not satisfactorily accounted for, ought rather to show the imperfect condition of our means of research into the operations of nature, than any fallacy or want of validity in the deductions from these experiments. Indeed, I am rather inclined to consider it beneficial to any innovation in science, not to wear the appearance of perfection at first view. Great improvements, whether of a scientific or mechanical nature, are not to be expected at once. They are the results of repeated observation and experiment, and it is no less true, we are not so apt to consider them chimerical or frivolous, when credulity is not too suddenly assailed by discoveries till then considered inscrutable. Difficulties, moreover, which cannot be immediately removed, are inducements for others to engage in the inquiry concerning them, so that in time, through these means and the gradual improvement of knowledge, well established facts will substantiate former inferences, and a once doubtful hypothesis become a lasting truth. We may, perhaps, go further, and, notwithstanding our inability to comprehend the immediate mode of action, exercised by the nervous influence, (so much, yet so vainly sought after, and speculated upon,) attempt to support an opinion on the subject already offered by Mr. Bell.

Not pretending that the respiratory nerves are to give, of necessity, to all the parts supplied by them, a motion synchronous with that of the lungs, or that they do more, in many cases, than establish a connexion or sympathy among these distant parts—I will show them no less important in giving expression, and depicting the passions, an office totally distinct from, and independent of, the sensibility of the muscles.

On this point, Mr. Bell observes—"First let us inquire, does it belong to the frame of animal bodies, that there shall be in them, indications of passions? if it be admitted

that this is the case, we here learn in addition, that as the portio dura is the nerve of respiration, so it is the grand nerve of expression, not only in man but in brutes also."

All the excitement and animation of a fighting dog, disappears, if this nerve be cut. "When another dog was brought near, and he began to snarl and to show his teeth, the face which was balanced before, became twisted to one side, to that side where the nerve was entire, and the eyelids being in this state very differently affected, presented a sinister and ludicrous appearance," &c. In a monkey the division of this nerve exhibited a very strange appearance; one being cut only, all that peculiar and timid expression was lost on that side, producing an effect truly ludicrous.

It is to this source entirely, we owe all expressions of countenance, as well as some motions of the face, already referred to. To Mr. Bell a case in point occurred: a coachman had a tumour just before the ear, in removing which by an operation, a branch of the portio dura going to the mouth was divided, and some time after he complained that, ever since the operation, he could not whistle to his horses, and of other inconveniences.

Now we are all well persuaded of the influence that the lungs exert over animal life, and know, that even with the division of the spinal marrow, or after decapitation, artificial respiration will maintain the vital actions for many hours, as proved by the experiments of many physiologists—and whether the action of the lungs depends immediately on the brain or spinal marrow, is of no kind of importance to investigate here—the fact of an intimate connexion between the lungs and brain, being all I wish to enforce—for then we understand, (and who has failed to observe it?) that the immediate change caused in respiration, under the influence of terror, and the striking expression of countenance accompanying it, are due to this sympathy, as useful as it is wonderful. Would it be possible, even independent of the mere abstraction of blood, to mistake the cause, or not to observe the effect of a nervous influence so evident and so connected? Even further, I believe the very recession of

the blood from the face, in the case just alluded to, is owing to some peculiar action of the respiratory nerves, allotted to the head, as well as its determination to those parts in some other cases. As an example, let any one compress the jugulars, intercept the blood in its return from the head and brain, to the heart, and permit it to accumulate in the face. Does the effect here produced, approach the fire of anger? or can this convey the expression of blushing modesty? Far from it, something more is requisite, to terrify the coward, or to touch the feeling heart, with this silent language, and that is most amply furnished by the respiratory nerves alone, of these parts. In a case of palsy in which one half of the body is totally deprived of subjection to the will, we do not find respiration impeded: how could this happen, unless the intercostal muscles and diaphragm were supplied by other nerves? and these nerves remaining unaffected by the morbid influence, does it not prove them to be in some manner different in their functions?

An additional probability of the influence of these nerves, may perhaps be assumed from a fact well known among practitioners in midwifery. It has been observed that the attempts at breathing in the child, are never made until the face is exposed to the contact of the atmosphere, whether it be entirely delivered or not. May not this have some connexion with the respiratory nerve of the face? And may not this nerve, acted upon by the cooler air, commence an action, which transmitted to the brain, sets the whole respiratory apparatus in motion, or as supposed by one writer, cause that uneasy sensation in the chest, to be relieved only by an inspiration, which the child makes for that purpose? Already have I attempted to put this to the test of experiment, and in two cases, in which the child made no efforts to breathe, I forced a current of cool air upon its face, watching narrowly the effects—when instantaneously a gasping, or spasmodic action followed, nor was this repeated, until I again applied the stimulus. Still more satisfactory is it, that the same fact has been noticed, and mentioned to me by one of my friends, resident in the Alms

House, whose frequent opportunities of witnessing this backwardness in the child to breathe, had induced him to try similiar means, when respiration did not immediately occur, and with precisely the same result, though without any idea of assigning a cause for it. This is to be regarded merely as a suggestion respecting one of the arcana of medical science, some of which, I have reason to believe, will owe their elucidation to the further investigation of this interesting branch of physiology.

It is to some actual though unsearchable distinction, imparted to the various nerves, that we are to attribute the different sensibilities of parts. The contents of the gall bladder are poisonous to the cavity of the abdomen, causing peritoneal inflammation and death—the urine, no less noxious to the same parts coming in contact with them, becomes a frequent cause of failure, in the operation for the stone. To variations in the nerves, whatever part the arteries may perform, must we, moreover, mainly attribute the great diversity in the many secretions of the body. Nuck found, on cutting the nervous branches supplying the inferior maxillary gland, as he remarks, “Non tamen ideo secretionem, cessare observabimus, sed tardior solummodo, et magis lentam procedere.” *

There is one other important point as connected with this subject, which is cursorily mentioned by Mr. Bell, and that is in relation to the tongue. He merely notices this organ, as being well supplied with respiratory nerves, viz. the glosso-pharyngeal and the ninth pair of Willis, besides having nerves of another class, and being gifted with other functions. These two nerves, I may observe, are not enumerated by Mr. B. among the respiratory nerves, although he subsequently speaks of them as such, and gives to them similar functions. It is in speaking, principally, that these respiratory nerves exert their influence, having in connexion with this organ, by means of other branches of the same

* Nuck, *Sialographia*, 1690 : Dr. Berzelius, in his work on Animal Chemistry, (1806,) supports the same opinion, though he is unable to explain it.

class, the lips, and all the other parts concerned in the complicated functions of voice and speech. To its supply from the fifth pair, of course, I place the sensibility and power of muscular motion attached to the tongue, and yet it is very plain, how absolutely necessary to the proper performance of its other qualities, is a perfect sympathy with the lungs and larynx.

Now the par vagum, arising in conjunction with the glosso-pharyngeal, and already enumerated a nerve of respiration, connects the larynx, pharynx, &c. with this great system, by means of the internal laryngeal, recurrent and pharyngeal nerves, and by its numerous connexions about the neck. Thus, under the lower jaw we find the par vagum, spinal accessory, sympathetic, portio dura of the seventh, and some of the cervical nerves, all connected and entangled in a way, which, as Mr. Bell, in his *Anatomy*, observes, "will fatigue the dissector, and may account for many sympathies."

Consulting the work of M. le Gallois, on the principle of life, I observe he discovered, in the course of his experiments, very great difficulties respecting the mechanical phenomena of respiration. Speaking of the evident relation between the brain and the act of respiration, he says, "The phrenic and all the other nerves of the muscles employed in the mechanical phenomena of respiration, arise from the spinal marrow, in the same manner as those of the other muscles of the trunk. How happens it, then, that after decapitation, respiration alone is destroyed, while all the other motions continue? This is, in my opinion, one of the greatest mysteries of the nervous power," &c. And, in a note, he further remarks, that "Some facts, observed in the course of my experiments, lead me to believe, that the accessory nerve of the eighth pair, acts a principal part in this state of dependency in which respiration is found to be upon the brain. This nerve has a singular distribution and course, which undoubtedly have a relation to some use, which no one has hitherto been able to elucidate."

To account for these seeming contrarieties, it must be

remembered, that, as Wilson Philip says, "although the powers of respiration remain, the sensation which excites the animal to call them into action is gone."* This is sufficient to explain the cause of death, inasmuch as we cannot find a substitute for this sensation. But on the other hand, when the eighth pair alone is divided, the thing is just reversed—the lungs not being able to perform their functions properly for any length of time, although the air is introduced into them. So in cutting away the brain by sections, until that part of the medulla oblongata giving rise to the eighth pair was disturbed, no change in respiration occurred, excepting that occasioned by loss of blood. This, with the other facts before mentioned, convinces me, that the healthy performance of this function depends upon a certain connexion between the lungs and brain, through the pneumo-gastric nerve and spinal marrow, and that the division of either removes an indispensable relative condition, and destroys the circle of communication. It therefore appears that the brain and spinal marrow, or the nerves arising from either, do not actually possess those functions which the ultimate nervous ramifications arising from them perform, but merely that they provide *powers*, which parts, having filaments from them, can alone appreciate, and put to a proper use. Thus the exposed surface of a divided optic nerve would not be sensible to objects, nor convey the same sensation to the brain—and yet there would seem to be some difference in the organization of nerves, as their various degrees of sensibility prove, which may probably be in some way connected with the diversified powers they convey: for I invariably found the fifth pair of nerves more acutely sensible to violence than the portio dura. Here it may be objected, that sometimes after amputation the patient really imagines the removed limb present, and describes sensations of pain, &c. in the fingers or toes. But this, I think, can in no way invalidate the above assertions, since these are false sensations, only showing the con-

* That is, where the spinal marrow alone is divided.

nexion that did exist between the brain and part removed, through the medium of the divided nerves, which are now affected with inflammation, producing a diseased impression, not discriminated from a healthy one by the sensorium commune: just as a disease of the hip joint produces a pain at the knee. This at least seems probable, for we must thoroughly understand what we mean by nervous action, nervous influence, &c. before we can satisfactorily answer all these points.

With respect to the phrenic nerves in particular, I believe them to give to the diaphragm powers and actions similar to those acquired by the face from the portia dura, and that the diaphragm gets its sensibility, and perhaps also its subjection to the will, from the dorsal nerves: for though, from habit, we become unconscious of its motions, we can nevertheless interrupt its action at pleasure, for a limited time, that is, as long as we can dispense with respiration. It therefore is presumable that the fifth pair convey to the face the same qualities (and are subject to the same laws) as the dorsal nerves do to the diaphragm—thus perfecting the double duties these parts are to perform: and, if I may carry my comparison further, the taking away the influence of the dorsal nerves from this great muscle, would be, in result, similar to the experiments I have performed on the fifth pair, in the face: it would be deprived of sensibility, but its respiratory actions would continue unimpaired. Indeed, M. le Gallois gives much aid to this opinion, as, on destroying the dorsal portion of the spinal marrow, “the middle of the body is dead, the motions of inspiration *subsist*, and are only performed by means of the diaphragm.” All these facts unite in giving weight to the new views of Mr. Bell, which now lie open to future investigation.

Before concluding, I must say a word or two on the reproduction of nerves, as connected with some very strong proofs brought forward in my experiments. It seems Mr. Hunter did not suppose nerves capable of restoration by an exertion of their own powers, for he observes, “Nerves

have not the power of forming themselves into longer chords, as we conceive vessels to have, for we know that in the union of a cut nerve, where a piece has been taken out, it is by means of the blood forming an union of coagulum,"* &c. Yet be the method what it may, a more surprising example of the "*vis medicatrix naturæ*," as it is termed, cannot be found than in this reproduction of nerves, which have been divided, and it has long been a matter of debate, whether, thus situated, they ever regain their former powers. From the experiments of Haighton, Pring, Munro, Meyer, and others, it has been proved, beyond all doubt, that parts, deprived of certain functions by the division of their nerves, have, in a time, by no means uniform, regained their lost powers. And Haighton, more particularly, has incontestably shown, that a piece removed from the *par vagum* was renewed, and the nerve so far restored, that a division of its fellow, on the opposite side, did not prove fatal.†

The period required is very various, for Mr. Abernethy mentions a case in which the sensibility of the finger was not restored until four months had elapsed: half an inch of the nerve had been removed. Nevertheless, in this case we cannot know whether it was by an actual reproduction, or through the agency of the sound nerves.‡ Pring removed a portion of one of the largest nerves of the axillary plexus, and in seven weeks, on examination, found the extremities totally unconnected, although the motions of the limb were perfectly restored—and in some cases he says the limb regained its powers before the nerve could possibly have had time to be regenerated. Notwithstanding, there is every reason to believe, that they have the power of repairing a solution in their continuity, endowed with every quality previously possessed by the nerve—or, in other words, that they do actually grow—for in the formation of granu-

* Hunter on the Blood, &c.

† The preparation showing this was preserved.

‡ I mean by reproduction, not merely anatomically connected by a substance resembling nerve, but having every function, sensibility, &c. as before, as proved by experiment.

lations, or healing of wounds and abscesses, the new parts are as well furnished with nerves as with blood vessels, and they are no less requisite. Meyer, who has attempted to prove the power of reproduction, states, that in the space of two months, an approximation of four lines took place in an intercepted nerve. In a nerve which I divided, and which was restored to its functions in rather more than two months, no appearance whatever of the union was perceptible, so perfect was it.

What, finally, may be the mode of connexion between any particular part and the brain, or in what manner the nervous influence is conveyed, yet remains to be unfolded, and will probably long remain a mystery. Nor shall I undertake to offer any suggestions on this subject, though I think it highly probable, the further prosecution of these, already submitted, may tend to afford some insight into the obscurities of this system. No practitioner of enlarged experience has failed to remark the great prostration of both the vital and animal functions in inflammations of some particular parts. I have more than once observed, that an insidious irritation in the peritoneum, extended, perhaps, to some important viscus, so depressed the system, producing a debilitated circulation and loss of energy in the brain, with a tongue of typhus character, and other evidences of low action, that stimulants of the most diffusible kind were resorted to, but, alas! with only an aggravation of the symptoms. This debility is only counterfeit. A local abstraction of blood—the most abstemious regimen—in fact all the remedies for inflammation, far from weakening, tend to give strength and raise up the prostrate system, with an evident improvement of the pulse. The cause of this mischief can neither be located in the arteries of the part, nor referred to congestion. An easier explanation remains—viz. the extended sympathy of the nervous influence—which, overpowered by the morbid cause, acts, through the medium of the brain, on the heart and vital organs, depressing their operations—and hence the loss of energy and apparent debility.

I have now gone over the principal facts deemed necessary to elucidate this theory, and shall next refer to the experiments instituted on the occasion, for a more direct and satisfactory evidence of the correctness of it. My experiments, I must observe, were undertaken previous to any opinion being formed on the subject, and were, therefore, prosecuted without any bias or prepossessions whatever. Perhaps some apology may be demanded for attempting to support any novel idea with so few experiments as I have performed. But, in fact, few were required. The result of my own in every instance nearly, proved so confirmatory of those of Mr. Bell, that it was not thought necessary to carry the inquiry farther. Once for all, independent of experimental evidence, the theory in itself seems so plausible, and is so strongly supported by reason, that little is requisite to convince us of its validity and truth.

EXPERIMENTS PERFORMED ON THE NERVES OF THE FACE.

Experiment 1st. On a Kitten.

Thursday.—Divided a large branch, thought the main trunk of the portio dura of the right side. Nostril not affected, but continues its action in respiration undisturbed. On a further examination another branch was found, which being divided, the nostril became motionless, nor could it be excited by any means: the operation painful in a very slight degree. The motion of the left ala nasi continues undisturbed. Next divided the infra-orbital branch of the fifth pair: result not conclusive, many muscles being cut, but on the portio dura of the left side being divided, the whole nose and lip became stationary.

Experiment 2d. On a Kitten.

Friday.—Divided the right infra-orbital branch of the fifth pair. The lip appeared to hang low, and was insensible

to any impressions—pain extremely acute—touching it before division produced pain. The same nerve was now divided on the other side—insensibility to puncture the only decided effect. Both nostrils were now moving in unison, but the right portio dura being divided, immediately that half ceased acting. On being set at liberty, and milk and bread offered, she ate, and supped the milk without difficulty.

Saturday.—Although very hungry, she could not take up solid food without great difficulty, probably from the many muscles cut, together with her insensibility: the hanging of the lip attributed to the first.

Experiment 3d. On a Kitten.

Saturday.—The right portio dura was laid bare. The mere irritation done to the nerve seemed in some measure to have impaired its functions. Had further corroboration of the correctness of the results of the preceding experiments, on its complete division. The same nerve was next divided on the opposite side—the right branch of the infra-orbital branch cut, and the animal set at liberty. Lip hangs low evidently, and insensible. A division of the portio dura was far less painful than that of branches of the fifth pair.

Experiment 4th. On a small Dog.

Friday, May 31.—Three separate branches from the right portio dura were successively divided: the effects nowise differing from those of the former, and as in them, was found somewhat painful.

Saturday.—Right nostril still immovable, while the left is not affected. Now divided the right infra orbital nerve, in such a manner, as to avoid cutting the muscles more than necessary. Very great sensibility and pain evinced. The right lip, &c. now became insensible, and seemed to hang low, (not decidedly) which had not been affected in this way by the destruction of the portio dura of the same side.

Experiment 5th. On a young Rabbit.

Monday, July 22.—Divided the portio dura on one side: immediately that peculiar and rapid motion of the nose and lip accompanying the breathing of this animal was arrested, excepting that in the ala nasi, it was not so completely checked. Died next day by accident. On dissection, a very large branch was seen going to the ear: this had not been disturbed.

Tuesday.—The same repeated on a cat, which is kept, to ascertain when a reproduction of the nerve will take place.

Experiment 6th. On a young Rabbit.

Wednesday, July 24th.—Exposed both portiones duræ. That on the right side was destroyed by a most extensive dissection, the left but partially, as only one branch was cut. Motion of the nose did not appear altogether arrested, on either side, which was owing to the left ala nasi acting partially on the right. Both sides of the upper lip motionless, particularly the right. This animal is preserved, to know whether an union will take place or not:* at times the whole lip and nose appear at rest.

Friday 26th.—Upon a close examination I found the right lip quite motionless: on the left side, only, irregular and undecided. The nose does not move as before the operation, but appears to be drawn to one side, as if the left only acted, drawing the right ala nasi to the left. Parotid gland discharging matter and enlarged, but on the left side the wound is healed.

July 28th.—Now very evidently, the right side is deprived of all motion, the left imparting a partial action to the ala nasi on the opposite one.

August 6th.—Wounds entirely healed, lips and nose as at last examination, but occasionally contracted by the muscles

* Upon a more fair and just ground, this point could not possibly rest, and if the functions return with a reproduction, it is doubly proved.

of the mouth, thus proving the perfect integrity of the nerves of "muscular motion and sensibility" of the part. A very strange alteration made in the expression of the countenance, occasioned by the right lip being contracted, or flattened to a great extent, while on the other side, the usual fulness remains—hence the face is distorted.

September 12th.—Seven weeks have now elapsed since the operation, and yet the parts seem in every respect as at the last examination. On trial find the sensibility partially lost on the right, and not quite so sensible as the other. *Conclusion*—Nerve not yet reproduced, yet from the experiments of Haighton, of Pring and others, we learn, between six and seven weeks were sufficient to restore its powers. The result of this I consider all important.*

Experiment 7th. On a Rabbit.

September 9th.—Passed a ligature around the portio dura of the right side—result similar to a division in the former cases—pain momentary and very slight: on pinching the nerve with the forceps, below the ligature, no marks of sensation; but above it, very sensible. Respecting the sensibility of the lip and nose, I find them not so acute, as on the sound side. This circumstance is easily to be accounted for, by referring to an anatomical fact, noticed before, of a branch from the fifth pair, uniting with the portio dura, to which I attribute the partial affection of the sensibility of the part. In four days I re-opened the wound, and found the ligature adhering quite firmly, the nerve somewhat thickened and enlarged *below* the ligature. Wound closed up, and animal preserved.†

Experiment 8th. On a Rabbit.

September 13th.—Laid bare the infra orbital nerve—extremely sensible to the touch of an instrument—passed a ligature under it and tied it. Showed very severe pain, but which was momentary. Motion of nose and lips in respira-

* See Experiment 9th, and result. † See Experiment 10th.

tion *not at all impeded or deranged*. Sensibility and power of muscular motion lost. Than this, nothing can be more decisive.

September 16th.—Offered the animal food, which, on touching the wounded side, it shows no perception of its presence, and does not take it unless presented on the other side: muscles of the lips were but partially cut, great pains being taken to avoid this, that the experiment might be as fair as possible.

Experiment 9th. A Rabbit.

Wednesday, Oct. 9th.—Took the same animal engaged in experiment 6th,—in which the right portio dura had been divided. Upon a close examination, could perceive no motion on that side, the left only acting, although more than ten weeks had elapsed since the operation: now made an incision over the portio dura, on the left side, and passed two ligatures about one fourth of an inch apart—action not arrested until a second branch was found, and treated in a similar manner, when all action instantly ceased. Cotton ligatures were used.

Now observed, what had not been before discovered—that a slight motion was commencing on the right side, though it is rather tremulous—the nerve appears about regaining its functions.

Experiment 10th. A Rabbit.

October 9th.—This animal was the subject of experiment 7th, and consequently, had not yet regained its powers in the right portio dura, where a ligature had been placed. The same nerve on the opposite side, was treated by two ligatures, as in the last case, including between them a space of about one fourth of an inch: pain slight and momentary, total loss of motion the only result. This method is a new one, and which, I have some hopes, will prevent a reproduction,—a dead portion of nerve being included between two ligatures.

Sunday.—Observed to-day, the two last animals could not command the food in their mouths—it collecting without

the teeth, distending to a great extent the cheeks and lips. In the rabbit, of experiment 9th, this takes place only on the side last operated upon, but in the other on both sides. This is altogether unaccountable.

The next morning the two rabbits were found dead, their mouths being so completely crammed with food, they could neither breathe nor swallow. Dissection proved death to have taken place from suffocation, the lungs being much congested, the blood fluid, &c. In the rabbit of experiment 9th, the powers of the nerve seemed daily to improve, and would probably soon have been restored entirely. The right portio dura was found perfectly regenerated, appearing as one continued nerve. The left still retained the ligatures, without any change perceptible in it. In the other animal, I found the cut extremities of the right nerve separate, but nearly in contact, (the ligature having cut its way out.) On the left, the ligatures were still retained, and no change apparent. This accident has defeated my expectation of finding a reproduction prevented by the means of two ligatures, but shall not hinder a repetition of the experiment at some future period, when I hope to be able to resume, and prosecute this inquiry more advantageously.

ART. III. *Anatomical Investigations.*

By JOHN D. GODMAN, M. D.

IN the anatomy of the human body but few discoveries are to be made, although, at present, there are various parts known, the descriptions of which are so imperfect, perplex, or obscure, as frequently to excite a doubt of their true nature. This evil is of considerable extent, and results from various causes, none of which are so active as a habit, becoming too general, of considering the structure of individual textures insulated from each other, and independent of their relations—as concerned in a single disease, or connected with a particular operation in surgery. Hence small

portions of the same membrane are known by different names, and very minute descriptions are given of each separately, so as to convey to the mind an idea of several distinct membranes, where there is in reality but one. Even if this conclusion be not drawn by the uninstructed, it is very certain, that every person, from mere reading, infers, that these membranes, fasciæ, &c. are extremely difficult to be understood, and that a thorough knowledge of them can scarcely be acquired. Some pupils are so strongly impressed with this idea, that they avoid the examination of such parts, and pass them by, as things on which much time may be spent, without the attainment of any equivalent good.

The fibrous membrane which covers the whole of the trunk, and a very considerable part of the extremities of the body, is one of the really important and perfectly simple structures, which has been made difficult, solely by considering it in fragments, and describing these with most tedious minuteness—though without any compensating clearness of arrangement, or accuracy of detail. With a hope of exhibiting this part of anatomy more advantageously to the student, and of removing some of the obstacles before mentioned, these investigations are begun—and should the effort be followed by any success, the author will be encouraged to extend his attention to other parts of equal importance, which hitherto have been offered to the learner under a similar veil.

By making a crucial incision through the integuments of the abdomen, from the ensiform cartilage to the pubis, and from the crest of one ileum to the other, going no deeper than the loose cellular substance, we may reflect the integuments on all sides, so as to leave the *fascia superficialis* untouched. If we then lightly make another crucial incision, we divide the *fascia superficialis*, and encounter a layer of cellular substance, more delicate than that which lies between the integument and fascia, yet in general very distinctly perceptible. By dissecting cautiously, the fascia may be reflected in every direction, though it can be done with

more ease where it lies over the tendon, than where it covers the muscular fibre.

Let us first examine the inferior part, which we shall find descending towards the top of the thigh, slightly connected by the intervening cellular texture to the tendons of the abdominal muscles, until it reaches Poupart's ligament, to the external or iliac portion of which it is more closely attached. As we approach the os pubis, near which it covers the spermatic ring and cord, the handle of the knife may be used to separate it from the tendons—and by looking under the fascia, when thus raised, without reflecting it, we obtain the fairest view of the real character and situation of the spermatic cord. The fascia receives a very considerable thickening near the pubes from the lamina of cellular substance exterior to it—and it is continued over the corpora cavernosa penis, as well as sends down a strong sheet into the scrotum, which has received the name of Camper's ligament. This portion descends obliquely in the direction of the cord, which it covers, and of the testicle, which it surrounds. The external portion passes downwards, over the whole of Poupart's ligament, to the upper part of the thigh, lying immediately under the integuments, and over the cluster of lymphatic glands and vessels, which fill up the depression below Poupart's ligament. As it approaches the top of the thigh, it gradually becomes thinner, and loses its regularity of texture, verging to the appearance of common cellular tissue: it may still be traced some distance down the inner part of the thigh, until it is lost in common cellular texture, lying in contact with the fascia lata and integuments. We may next raise the fascia superficialis from over the crest of the ileum, and pursue it backwards to the spine, and we may follow it downwards covering the whole of the *gluteal* muscles, where it is strengthened by large additions of cellular texture. As we approach the tubera ischii, the fascia becomes more closely attached to the surface, and in many instances seems to terminate there. This, however, is not the case, as it may be followed across covering the whole of the perineum, forming the

strong fascia, which presents to the knife immediately after the first incision in lithotomy. We trace it from the perineum upward, until we lose it on the under surface of the penis, where it mingles with the covering which this organ derives from the anterior part of the fascia.

Returning to the central part of the abdomen, we prosecute our dissection upwards. We raise the fascia superficialis from the tendinous sheath of the rectus with ease, but find it so closely adherent to the proper coat of the muscular fibre, as to require some patience and care for its separation. This, however, may be effected with comparative ease, and we lift it from over the lower part of the sternum and pectoral muscle, and from the superior part of the external oblique. We trace the fascia with great facility towards the spine, and find it giving a strong covering to the muscles of the back.

When we raise the anterior part to within a hand's breadth of the clavicle, we see that the *platysma myoides* is on the outside of the fascia, and in immediate contact with the integuments, stretching obliquely upwards to the angle of the jaw, its anterior fibres ascending to the angle of the mouth, and the posterior in many instances rising to the zygoma and connecting itself with the outer part of the orbicularis oculi.

Having removed the *platysma* carefully, we then obtain a view of the superficial fascia covering the whole of the neck, ascending in front to the edge of the chin, where it is lost in cellular and muscular substance. As we pass towards the angle of the jaw we find it rising higher, (though thin) covering the masseter muscle, attaching itself to the zygoma with firmness, and extending towards the ear, so as entirely to overlay the parotid gland, and prevent us from obtaining any distinct idea of its precise figure. From the back and upper part of the zygoma we see it passing up on the outside of the temporal fascia, and including in its substance the *anterior auris* and *attollens aurem*. The portion covering the shoulders and back of the neck continues over the occipital belly of the occipito-frontalis, and

may be traced over this muscle, and continuous with the lateral portion until the muscle becomes united with the scalp.

After gaining this view of the exterior of the superficial fascia, let us return to the anterior part, and make a careful incision from the centre of the sternum to the centre of the chin. Then we reflect the superficial fascia towards the shoulder, and thus uncover the sub-maxillary glands and bellies of the digastric muscles above, and the sterno-cleido-mastoideus, throughout. Tracing the fascia to the posterior edge of this muscle, we shall find it to split, or form two portions, the anterior of which (the part reflected) doubles immediately around the sterno-cleido-mastoideus and goes forward again towards the trachea, the anterior part of the neck, covering the muscles of the os hyoides, &c., the trachea, and thyroid gland. Below it is connected with the edge of the clavicle, and above with the os hyoides and thyroid cartilage. The other part runs outwards and backwards from the posterior edge of the mastoideus—extending downwards, attaching itself to the acromion and spine of the scapula, where it gradually blends with the general superficial fascia on the back. Thus the sterno-cleido-mastoideus is inclosed in a distinct sheath, the same fascia forming both the deep and superficial covering of the neck. This part of anatomy, although *known*, beyond a doubt, has never been described with precision, and I might claim the merit of a discovery with much less danger of losing my title than has occurred in the case of others. Even Colles, with all his minuteness, has not attended to this really beautiful arrangement, which enables us to understand the anatomy and pathology of this region with much more clearness, than if we considered these to be distinct structures.

The last part of the fascia superficialis to be traced is that which we find extending from the pectoral muscle and clavicle over the deltoid, and surrounding the muscles of the arm, continuing to the elbow, exterior to the fascia of the biceps muscle. At the bend of the arm, or rather just

above, gradually becomes too thin to allow of its being raised, and is lost in the common *fascia musculorum*.

After the general examination of the extent and relations of the *facia superficialis*, we may with great profit attend to the different modes in which it may affect the conclusions of the physician or the operations of surgery. In doing this, for the sake of regularity, we may begin with the superior portion. Here we may observe that the manner in which it is attached to the zygoma and covers the parotid gland will prevent us from readily discovering a fluctuation. The peculiar arrangement of the fascia, which incloses the mastoideus, enables us to understand why a suppuration of this gland always breaks anterior to the muscle, and the matter does not find its way among the deeper seated parts of the neck. If we consider that the portio dura, or respiratory nerve of the face, comes out through the parotid after having passed through the foramen auditorium internum, we shall not be surprised at the extreme pain in the ear produced by an inflammation, which must violently compress this nerve through the agency of the *fascia superficialis* and the surrounding bony structure. The anterior portion covering the sub-maxillary gland will exert a pressure of the same kind, though by no means so great, as the surrounding parts are very different in character. Over the pectoral and other muscles, this fascia will necessarily exert a similar influence when tumours form or suppurations ensue. By attending to the differences in the strength and degree of attachment of this fascia in various situations, we may form a tolerably correct idea of the course that the matter would pursue. Certain diseases convince us clearly of this, as may be learned from the following dissection made during the last winter. A patient died of infiltration of urine, succeeding to a rupture of the urethra in *perineo*. The urine had gradually made its way upward, and had passed into the scrotum, which was in a state nearly approaching to putrefaction. The urine had followed the course of the cord, and had separated the *fascia superficialis* from the tendon of the external oblique,

considerably above the crest of the ilium. Here the attachment was too close to permit its passage farther. Below it was bounded by the attachments to the tubera ischii, and on the upper and inner part of the thigh by the attachment to the fascia lata.

It is almost unnecessary for me to dwell on the importance of the anterior portion of the fascia to the surgeon. In hernia it is frequently very much thickened, and its appearance entirely altered by inflammation. In scirrhus of the testicle it may also be changed in character, and by this change add materially to the unfavourableness of our prognosis. Whenever we are to operate in this region, we should recollect that the fascia superficialis comes into view as soon as we have divided the integuments and a portion of cellular substance.

That part of the fascia superficialis which covers the *gluteal* muscles is also well worthy of consideration. Sometimes the matter of lumbar abscess makes its way out of the ischiatic notch, following the cellular substance surrounding the vessels. In one case, which fell under my own observation, the appearances presented by a collection of matter were such as to deceive several skilful surgeons as to the real nature of the case. It appeared to be a circumscribed, or an encysted tumour. There was nothing in the history of the case to induce a suspicion of its real nature, so that it was resolved to remove it with the knife. A crucial incision was made, and the flaps dissected back, so as to discover the surface of a large sac, occupying nearly the whole extent of the buttock. When the operator began to cut round the base of the tumour, the nature of the disease was at once seen. An opening, made by the knife, let out a vast quantity of flaky matter peculiar to scrofulous abscesses, and the patient, in a few weeks, exhibited signs of hectic, soon succeeded by colliquative diarrhœa and death. This case will point out the propriety and importance of making a small puncture with a needle or lancet in every tumour of doubtful character, as advised by Pott in the case of diseased testicle, and by Abernethy as a general

rule. Had it not been for this posterior portion of the superficial fascia, the matter of this abscess would have found its way down to the extremity of the limb, as it would have been entirely external to the *fascia lata*. It is solely by the acquisition of a thorough knowledge of the relations of parts, that a surgeon or physician can properly decide on the true character of diseases.

The fascia superficialis is neither very vascular nor sensible. Its arteries are derived anteriorly from the extreme branches of the intercostal, mammary and epigastric arteries; posteriorly from the branches which nourish the muscles of the back. There are in front two veins descending from the navel to the top of the thigh, running over Poupart's ligament, which are the only vessels worthy of notice, though they are not very important. They help to return the blood sent out by the epigastric arteries, and empty into the great vein below the ligament. The nerves of this fascia are very few, although it is perforated in many places by the extreme branches of the intercostal nerve. It cannot be supposed that a fascia of this kind is possessed of any remarkable degree of sensibility, or that it is supplied with a greater number of nerves than is required to maintain it in proper relation with the rest of the system.

I am well aware that in many cases the fascia superficialis does not appear continuous to the entire extent herein described. That in certain situations it is more closely attached to the subjacent parts than in others, is also well known—yet as we frequently find subjects in which the closest of these attachments offer little or no obstruction to the raising of the fascia as above pointed out, we see no reason why it should not be described as a general fascia, which it really is, instead of a number of disconnected fragments, scarcely reducible to order, and almost unintelligible. By the former method we avoid confusion, and enable the learner to form correct opinions of its general character and uses: by the latter, a needless perplexity is occasioned, and the advances of the student are injuriously retarded.

ART. IV. *Cursory Remarks on the comparative utility of Vesicatories and Rubefacients, in the treatment of Yellow Fever.*

Read before the Georgia Medical Society, August 3d, 1822.

By W. C. DANIELL, M. D. of Savannah.

IN common with most others, I entertained, at one time, a high opinion of the utility of vesicatories in the cure of fevers, especially of those of our own climate, and accordingly prescribed them extensively and freely, in all those stages of the disease, in which they were generally supposed to be useful—and it has been only from my frequent, very frequent disappointments, that I have been compelled to withdraw my confidence in them. As early as the autumn of 1817, I was satisfied that the skin is the main organ upon which impressions are to be made in the treatment of our fevers, and with this conviction, I prepared a blistering ointment, with a double quantity of flies—even which, however, in most cases, did not vesicate. This ointment was designed more particularly for cases of collapse. It was some time after my loss of faith in the powers of vesicatories, that I discovered the advantage that might be derived from active rubefacients.

Considerable as are the powers of Cayenne pepper, and mustard plasters, prepared in the usual way, their efficacy is much increased, and their impressions upon the system rendered much more permanent, by the addition of spirits of turpentine. It is with this auxiliary, that I am in the habit of using these articles. They must be kept on until the whole depth of the skin is inflamed, and re-applied to the same surfaces from time to time, to sustain the impression first made. In many instances an application of twenty minutes, is sufficient to inflame the skin, though sometimes four, and even six hours are required—and I wish it to be understood, that it is of their qualities, when so prepared and applied, that I speak. I have frequently used hot water alone, which, though more apt to vesicate, I am ha-

bitually disappointed in my expectations of the beneficial effects on the system from it.

The red pepper is decidedly more powerful than the mustard, and I usually resort to it in those cases, where there is most torpor of the skin.

The preceding remarks, refer to the efficacy of rubefacients over vesicatories, in those violent and rapid forms of yellow fever, and in those stages of our common fevers, where all the chief affections appear to be concentrated in the stomach and adjoining viscera: in which cases, if there be great heat in the commencement, it is usually of short duration, and is, at an early period, called in from the extremities and surface, to the support of the violent assault made upon the abdominal viscera, particularly the stomach—as well as to those cases in which, without many or any symptoms of visceral disease, there is a tendency to collapse, with a rapid declension of the vital power—where evacuations, without relieving, debilitate—and where, without much perceptible exacerbation, there is frequent or constant moisture, or clamminess and coldness of the surface and extremities, attended sometimes by hiccough and faintness, with tenderness and pain in the epigastric region. I also embrace that variety of fever in which there are daily and regular paroxysms, threatening a total extinction of life. In such cases, the paroxysm commences with coldness of the extremities, and retchings, and frequent vomitings of small quantities of green bile. There is here too, a steady and severe pain in the stomach, always a tenderness upon slight pressure, with sensations of internal heat—a thin, feeble, thread-like pulse, a dull, muddy, idiotic or glassy eye—the heat of the system scarcely ever above the healthy grade, and frequently much below it. Without the greatest exertions, the patient sinks in the early part of the paroxysm, and it is especially in this form (called by Alibert, malignant,) that the advantages of rubefacients over vesicatories are most obvious. The former, aided by an infusion of serpentaria or Cayenne pepper, separately or combined, exercises the most salutary influence. It is not, how-

ever, to be inferred, that I accord to vesicatories a decided preference over rubefacients in the open, inflammatory, regular shape of fever—in that variety of the disease which has given origin and credit to the idea, that the yellow fever is only a higher grade of bilious fever—and forming, as has been supposed, the connecting link between the latter disease, and those varieties of yellow fever, whose characters have been already glanced at, and which, I think, are the legitimate features of the yellow fever, where that disease habitually reigns. In the open inflammatory fever, I believe, that local applications, whether vesicatories or rubefacients, are less powerful auxiliaries than many seem to imagine. The excessive action here, appears to be equally diffused over the whole body, in proportion to the blood-vessels of the part, and is to be reduced not by local discharges, but by general evacuations. It has, indeed, become a question with me, whether the irritation produced in the latter stages of the disease by vesicatories, does not much more than counterbalance the service which they otherwise perform.

Do not blisters in such cases so much blunt the sensibility of the system, as at least in some degree, to lessen or impair the influence of other and more important remedies?

I shall now mention what appear to me to be the chief objections to vesicatories in those stages or varieties of our fevers, which I have already described in examining the comparative utility of vesicatories and rubefacients.

Let me first remark that there is not properly what the late Dr. Rush calls the blistering point in these fevers.

1st. When used to resuscitate action, the torpor of the skin is such, that blisters frequently fail to produce any effect.

2d. When, however, they do vesicate, the inflammation which they previously excite, and which is chiefly or alone serviceable from the revulsion it creates, is removed by the discharge of serum.

3d. The stage at which they exercise a revulsive effect is between the time of exciting inflammation and its solution by the effusion of serum, and consequently is too short to cause an efficient influence.

This is fully exemplified by the fact, that when a blister is applied to relieve gastric irritation it usually does good only whilst it inflames the skin—its influence ceasing when it is dressed, and sometimes continues not so long.

4th. The discharge of the water of vesication occasions an exhaustion of the powers of life, which, in many instances, much more than counterbalances the good effects of the previous inflammation.

5th. Mortification of the part, causing death, occasionally occurs from their use.

6th. They sometimes create a distressing strangury, which adds much to the sufferings of the patient and exhausts his strength. It was a mistake of Dr. Rush to suppose that recoveries usually follow strangury in yellow fever. This, at least, is not the case here.

7th. Blisters consume much of the excitability of the system without producing a corresponding degree of excitement. In the latter stages of our fevers the absence of excitability is a great obstacle to the use of remedies: it behoves us to husband with much care the remains of the vital principle, and whatever impairs it, lessens very much the chances of recovery.

8th. Each succeeding application of a blister produces less excitement than the former, and a much greater consumption of excitability.

9th. Blisters affect only the surface of the skin.

I shall now subjoin the advantages of rubefacients in our fevers:

1st. They produce a more powerful, certain and permanent revulsion than blisters.

2d. They inflame the whole depth of the skin.

3d. The inflammation may be excited and perpetuated by the re-application of the plaster, and each time the action is greater than before, because it operates upon a more tender surface, and produces a more prompt, and a greater revulsive effect.

4th. The inflamed surface is not relieved by a discharge, consequently the revulsive power is maintained.

5th. Rubefacients will act when blisters, from the torpid condition of the skin, have no influence.

6th. Producing no discharge, they are not followed by loss of strength.

7th. They do not cause strangury.

8th. They frequently relieve restlessness, procure sleep, and compose the patient.

9th. They lessen the disordered action of the blood vessels, tranquillize the pulse, and excite perspiration.

10th. They astonishingly relieve the sensation of inward heat and burning.

11th. When the excitement of the system becomes fully diffused, all local affections subside forthwith—the bowels, of their own accord, cast out the offensive matter collected during the fever, and the tongue becomes cleansed of its coat, if any had existed previously. In like manner they diffuse moisture over the hard dry tongue.

12th. When the fever terminates by perspiration, the inflammation of the skin usually ends in an effusion of serum under the cuticle of the inflamed part.

It would be going beyond the limits which I have prescribed to myself, to enter into a detail of my views in relation to the character of yellow fever. It will be perceived, however, that I do not deem it one of inflammatory action. If some diseases, passing through all their stages, terminate in death, and give no evidence of their character to be traced by the knife of the anatomist, all will acknowledge that inflammatory diseases, in the injury or disorganization of parts, leave not only their “ thrones but footstools behind them.”

Whilst I decline comparing authorities upon the subject, I invite to an examination of the sick and the dead for evidence of an inflammatory character in yellow fever. Will it be said that this disease exhibits symptoms of an inflammatory character not to be mistaken? What are they? Does it follow the course of those admitted to be inflammatory? Does it produce the effects always expected from inflammatory action? Does dissection show such effects?

Will the stomach be pointed to, to prove the existence of inflammation? Examine it, and not one trace of inflammation can be discovered. It will, indeed, give positive evidences to the contrary. The intestines may contribute farther proof of the absence of inflammatory action. I have, for several years past, had the most ample opportunities for examining the bodies of those who have died of yellow fever. I never have seen an *inflamed* stomach in the whole course of my numerous examinations. Red spots, more or less numerous, are always to be found upon the villous coat of the stomach, and especially in the pyloric and cardiac portions. Dissecting away the villous and nervous coats, the veins external to the nervous coat are found turgid with blood, and the arteries empty. On holding up these two coats, (still attached together,) between the eye and the sun, it is clearly seen that each red speck is distinct, though frequently they are so thickly studded together, that on opening the stomach they appear as one continued red colour. It was this appearance, which deceived Dr. Waring and Dr. Kollock. The latter acknowledged to me this summer (1822), upon my exhibiting a stomach to him, that he had been deceived, and declared his conviction that the stomachs which Dr. Waring had shown to him, in 1820, were similar to the one which I submitted to his examination. These specks are about the size of the point of a writing-pen, and irregular in their shape: sometimes they exhibit the appearance of the minute extremities of the veins very imperfectly injected with red matter. Interspersed with these spots, there are frequently to be perceived black points, about half the size of the head of a common cap pin, —which seem fixed on the surface of the villous coat, and somewhat imbedded in it. Dissecting the villous coat from the nervous, the red spots are still to be seen in the former, and no traces whatever of them can be found in the nervous. This, certainly, is not inflammation, but an imperfect congestion in the extreme capillary veins. Exactly such appearances are frequently found in various portions of the

intestines, though not to the same extent as in the stomach.

A dark bluish spot is occasionally found in the stomach, (usually near the pyloric orifice,) of from half an inch to two inches in diameter, which I believe has been mistaken sometimes for mortification or ulceration. It at first deceived me. It is invariably, I believe, covered with a mucus of little tenacity, and of the appearance almost of pus. This mucus may be removed, and the surface will then be found entire, and of as much tenacity as any other part of the stomach. In endeavouring, indeed, to discover whether it was not sphacelated, I have torn the neighbouring parts, which yielded more readily than the coloured portion.

Examining the liver, spleen, pancreas, &c. &c.—where are the traces of inflammatory action? Is coaguable lymph any where effused? If we seek for inflammation in the brain, shall we find it? What is to be deduced from the history of the treatment of the disease? Depleting remedies are used. But do they succeed? Bleeding, all admit, is at least unproductive of benefit. Do we evacuate the bowels? Two or three purges often prostrate the patient so low that we find it necessary to stimulate. Can stimulants ever be serviceable in inflammation? When great irritability of stomach, and constant retchings, exist, we give lime water, milk and other bland drinks, and these affections are increased. But exhibit a strong infusion of Cayenne pepper, and relief is afforded. Let there be much tenderness in the region of the stomach, cooling applications are of no avail;—while Cayenne pepper, serpentaria, and sinapisms relieve it. Can such remedies, under any circumstances, remove an inflammation? We have learned, on this subject, much to no purpose—we have learned much which we must unlearn. We have a great deal to learn which is very much at war with our present opinions, before we shall be enabled to manage yellow fever. It is certainly not a disease of inflammation: it exists in the loss of balance between the capillary circulation and the alimentary canal, and the rest of the sanguiferous system. Re-

store the equilibrium, and sustain it, and we remove this disease. That restoration is to be produced by exciting the vessels of the skin, and of the alimentary canal, (especially of the stomach,) to a vigorous action. The intimate connexion existing between these two surfaces is well known. Give tone to the one, it is forthwith extended to the other. The causes of yellow fever operate upon the skin, and the effects are developed in the stomach. By sustaining the capillaries of the surface under the paralysing effects of the causes of the fever, and preserving tone and vigour in the stomach, a diffused circulation is restored—the disease thereby overcome—and the most astonishingly rapid convalescence ensues.

We recommend to the attention of our readers the ensuing article. It is the production of a physician, no less venerable for his learning than his age. The subject is exceedingly interesting, and the discussion of it abounds with curious observations and ingenious reflections. We again invite the men of the “olden time” to contribute the result of their ample experience to this Journal.—EDITOR.

ART. V. *On the Medical Topography and Diseases of a Section of Virginia.* By ALEXANDER SOMERVAIL, M. D. Springfield, Essex County, Va.

From Port Royal to Tappahannock, the banks of the river Rappahannock are from one to two miles or more apart. The course of the river is from N. W. to S. E. and the distance from one place to the other by the road is about thirty-six miles, and perhaps ten miles farther, along the river. The bank rises above high water mark from four to thirty or forty feet in some places, but the river does not fill all the space between the banks: in general when it comes to the bank on one side the other is occupied by an

extensive marsh, rising a few inches above the ordinary high water, and at high tides is nearly and sometimes entirely covered by the tide water—intersected by creeks of different sizes running into it, or through it, as it happens to be, and from a few feet to twenty or thirty yards in width. Where these marshes join the bank, numerous springs of water flow from under the surface into them, and thereby for some distance in, say twenty or thirty yards, render them miry. Beyond that and to the river and creeks they are soft, and always wet or rather damp—the edges of the creeks and river quite miry, and covered with a luxuriant growth of high and thick grass all the summer. The roots of the high three cornered grass form a complete mat all over, so as to allow cattle to walk, and where that is broken through man or beast will sink in mire. Various other grasses are mixed with the three cornered grass, and make tolerable hay: on the edges of the river and creeks a higher and coarser grass resembling reeds generally grows, and on the softest and most miry places wild oats are found. These marshes often join the bank for a mile or more, extending to within six or seven hundred yards of the opposite bank, where the river runs—then on the other side, and the width of the river above, and below, another marsh begins, running within a similar distance of the opposite bank—and thus the river passes along between a marsh on one side and a sandy shore on the other, or sometimes marshes on both sides. About twelve miles below Port Royal these marshes are perhaps a little higher, and covered with wood of various kinds instead of grass, but equally wet, and more unfit to walk on. As we go up the river, there is more wood and less marsh on these grounds—each, however, containing from one hundred to a thousand or more acres.

The water of the river is fresh to within ten miles of Tappahannock, it then becomes salter as it goes down, and at Tappahannock is always salt, and has a little of the smell of the sea. The land on each side in the places where it is lowest runs back on that level several hundred yards,

when another rise takes place, generally up to the level of the highest part of the bank, but in some places there are two risings before it gets to that level. It then goes back on that level to the foot of the hills which bound the valley of the river, and rises by a steep ascent, in most places from one hundred and fifty to two hundred feet, to the general level of the surrounding country. These hills come to the water's edge in perhaps three places on each side of the river in this distance, but always on the opposite side they are farthest off. The lands between the river and those hills are called *river side lands*, and are from half a mile to three or more miles wide on each side of the river, except where the hills come to the bank. From the highest of the hills a horizontal line would touch the summits of all the ridges of the Mattapony on the south, and the Potomac on the north, or rather to the highlands bordering the valley of each river, which is like unto that of the Rappahannock. But this space of country is every where cut up, by the ground falling into little valleys, in which are springs of water, descending into larger streams, and many uniting form more considerable rivulets, enlarging as they go, till they pass through the high land into that on the river side, where they meet the tide water, and are called creeks, having banks and marshes exactly like the river. The farthest branches of the largest of those streams extend to the ridge of land which divides the waters falling into the Mattapony on the south, and the Rappahannock on the north, and also in like manner between the Rappahannock and Potomac, which high, uneven surface, is called the forest.

So irregular is the ground beyond the highest rise, that it is probable a level of two or three hundred yards each way cannot be found between the Mattapony and Rappahannock, or between that and the Potomac. Yet if we proceed up any of those ridges parallel with the course of the stream, or valley in which it runs, we shall arrive nearly on a level though winding way to the dividing ridge between the rivers, and may descend on that ridge to the high lands around the Chesapeake, or ascend to the falls of

the rivers, believing the ground on a level the whole way. On the edges of all those streams there is a space of level land on either side, usually called swamp, having many springs of excellent water issuing from the foot of the high ground on each side, or from the little valleys which join. This space may be from a few yards to a hundred or more wide, according to the size of the stream which flows through it. In every considerable stream, just above the tide water, a mill is situated, and farther up more, as they are required, or the stream will allow. The river side lands were originally covered with heavy timber, chiefly white and red oak—the forest, also, with white, red, and Spanish oak, and hickory, but not so large—the swamps with ash, maple, and sweet gum, and on the valleys and hill sides with the poplar, or tulip tree. In 1785 these woods were generally cut down, except what was thought necessary to reserve for use, and, indeed, at that time, people were afraid they would have neither wood for fencing nor burning in a short time. Tobacco and Indian corn were the principal articles cultivated: a patch of wheat for family use, and of cotton for the same purpose, were to be found on every plantation. On the river lands, and in every field, all was on its original level; and in consequence, many irregularities existed, forming ponds of various sizes in wet weather, disappearing in dry, and many always too wet for the plough: these were covered with bushes, whortle berry, alder, briars, &c. with sweet gum saplings and others of similar growth. In many places where corn grew in summer were ponds in the winter, and most fields, from the numerous patches of underwood in those valleys, as well as little rivulets passing through, whose banks and bottoms were wooded, gave the appearance of a continued wood with spots of cultivated ground scattered through it. Every swamp above the creek, and marshes on the river lands, and to its beginning in the forest, was covered with heavy timber, underwood, and briars—the course of the stream thereby obstructed, and the whole bottom wet.

On the river side intermitting fever was universal, the

type very generally double tertian, sometimes simple tertian and quartan. Tertians began in April, May, and June—by July double tertians were frequent—in August, September, and October, bilious remittents were abundant, until the frost and stormy north winds drove all away. We then had some quartans through the winter. These winds began in October, and were frequent till the middle of November, and sometimes in the winter. Their effect was so remarkable in sweeping off these fevers, that it was a common observation when the first north west wind came, to say, the *Doctor* is come now, and we shall soon get well. The bilious fever here spoken off, began in the morning by eight or nine o'clock, with a little chill, severe sick stomach, and much vomiting of bile, which, with the other symptoms of fever, produced great distress. By twelve or one o'clock the sickness and vomiting would abate, a little perspiration appear, and all the symptoms be much relieved: but by four in the afternoon, an exacerbation would recur with every symptom more severe, particularly the sickness and vomiting, and increase till near midnight. After this it abated till the same period next morning, and so went on daily till it could be cured. I have no remembrance of any patient dying from this fever, except infants or old people. Few indeed escaped some of these fevers. Every year on the river side, and perhaps half the people in the forest, had intermitting fevers of some type. Negroes were as much affected by tertians and double tertians as the whites, though I do not recollect any negro having bilious fever.

The cultivation of tobacco was abandoned about 1790, and that of wheat substituted in its place. Each year since more wheat has been sown, and more ground put into a state fit for it—and for the last twenty years, all the corn fields have been sown with wheat, which has entirely changed the face of the country. The whole of the river side land, is now cleared of every pond and bush, so that we may see from any part of these fields the fence all round—the ground tilled to the very edge, every little rill and rivulet confined to a clear straight channel, and the ground cultivated in

corn and wheat to the water's edge—and along the banks of these little valleys, till it joins the other part of the field. The space from the foot of the hills to the bank of the river, exhibits one clear, level, cultivated surface, without any stagnant water in winter or in summer. In the forest, every swamp of any size is in the same condition, converted into fine wheat ground, and the once worn out fields are now thick set with a growth of large pine woods.

We have not had, for many years, one in ten, or perhaps in twenty, of the intermitting fevers which formerly prevailed, and I have not seen a bilious fever for the last twenty years, except in Tappahannock. But Port Royal has for several years been much afflicted with both intermitting and bilious fever, from which it was formerly entirely free. What is the change there to produce this effect, I do not exactly know.

Many of my neighbours of the profession, now meet with what they call bilious remittents. In my opinion, however, these are continued fevers—and the abundance of bile evacuated in their practice, is produced by the perpetual use of calomel as a purgative. When intermitting and bilious fever was most abundant, there was no continued fever—and I remember well, that the first cases of the latter which I saw, occurred in the summer of 1790. These were in several families at a distance from the river, and where intermitting fever was seldomest found. Nearly all the family, white and black, were sick one after another before the fever stopped, and none after getting well were taken *sick again*. This fever has some years prevailed extensively. Many families, in 1806, were affected, and in the epidemic of 1814 and 1815, which I considered of that description, none who had the fever of 1806, had that of 1814, nor since we were freed from that has it returned among us. It is true that sporadic cases are often met with, though only one at a time, or at a place—no families, or neighbourhoods, becoming affected. Intermitting fever is now found in such positions only, as have wet ground, and many situations formerly in this state, that were very sickly, have be-

come quite healthy by draining. This place, where I have lived since January, 1807, affords a striking illustration of the influence of such causes. I had known five different families residing here from 1787, to 1807, all much plagued with these fevers, and when it was offered to me, I refused it on that account. Being asked, however, to examine it, to see if it could be changed—I did so, and found around a spring about seventy yards south of the house, a piece of wet miry ground, not above a quarter of an acre in extent, covered with laurel, (*magnolia glauca*,) and other shrubs. I believed this piece of marsh to be the cause of its sickliness, and on removing here in January 1807, had it drained as soon as the season would allow. None of my family had intermitting fever till 1821, at which time, from an obstruction in the drain, the surface of this ground became merely damp. The ground having again been made dry, we have ever since continued free from the disease.

I have known several other places so situated with regard to laurel swamps, and all of which were liable to autumnal fevers. It is not uncommon for places ordinarily healthy, to become sickly in the distilling season, by wetting a piece of ground with the hot water drawn off from the still—and from the apple pumice left about the cider-press. In some houses, water is accumulated in the cellars after every rain, remaining a long time—and whenever such is the case, intermitting fever will prevail. By persuading several families to remove these nuisances, I have succeeded in preserving their health.

From 1785 to 1793, I lived on the river side land, and suffered accordingly. Even after I removed into the forest, by being much on the river, I was sick every summer or fall. But since 1797, I have only once had intermitting fever, and that was in 1805. In the last days of July, and first of August, of that year, I passed seven days in a sickly situation on the Potomac, and a very short time after I returned, I got wet in a thunder shower, and soon had the ague and fever: one of my family, who was with me

on the Potomac, and in the shower, shared the same fate, and neither of us have since had intermitting fever.

I know one family who were very healthy, until they built a mill, perhaps six or seven hundred yards south-east of the house. The ground converted into the pond was full of trees, which died when the pond was filled with water, and the next year most of the family were attacked with intermitting and even bilious fevers. This continued year after year, till all the trees had fallen down, floated ashore, and were burned, the pond then presenting a surface of clear water—and since which, the family have been as exempt from ague and fever as formerly.

During the last seven or eight years, I have employed ten men and boys all the month of August, in a large marsh, intersected by creeks, on the north side of the river, in getting hay, and bringing it over to this side. These people lived in the healthy part of the forest, and such are believed to be sooner affected, on going into a sickly place, than those who live there permanently. Yet none of them got the ague and fever by this exposure. They are allowed half a pint of spirit a day. I formerly used, for the same purpose, a marsh on this side, and the labourers went in through the miry grounds over a path of hay, and then they had the ague and fever very often, though with the same allowance of spirit.

We may fairly conclude, I think, from all this, that if the whole of a country was as dry in summer and winter as wheat fields, we should have no ague and fever. Even on the river and creeks, were a small ditch to be cut between the marshes and the land, to receive the waters of the springs, and convey it off, so as to dry up the miry places always found there, much might be done.

When I lived on the river side lands, I was greatly afflicted with intermitting, and sometimes bilious fever, and it therefore became an object with me to cure these complaints on the easiest terms possible. Many experiments were made on my own person—and some which did well with me, failed in others, because they depended for success

on certain sensations excited, which I could feel and manage with ease. Some of these remedies, though effectual in removing intermitting fever, were manifestly injurious to the living system,—such I believe arsenic to be,—opium by itself is not as much so,—and wine and spirit still less. They are apt, however, to induce a habit of drinking, which does such harm in this part of the world as most seriously to be deprecated.

Last fall I made a few trials with the prussiate of iron, but it did not succeed with me, though, when I found it fail, I increased the doses considerably.

To arrest the progress of these fevers as soon as possible, I consider of the greatest consequence, being sure, if allowed to continue, to produce irreparable mischief. The first step is to empty the *primæ viæ* most effectually, and for this purpose there is seldom need of emetics. I now prefer the saline cathartics, and of these, vitriolated tartar, (sulphate of potash,) Epsom salts, (sulphate of magnesia,) mixed with magnesia, (carbonate of magnesia,) and phosphate of soda, are selected, believing them to exert a salutary influence in fever, independent of the evacuation. When acidity prevails in the stomach, Epsom salts and magnesia have the preference, and where the fever is most severe, phosphate of soda—or, where the intermissions are short or indistinct, one day the one, and the next the other medicine. These I give in divided portions every half hour, in greater or smaller quantity, according to the state of the stomach—till a large dose is taken on the whole, and the object effectually attained. The interval of fever not being clear or distinct, I repeat a similar dose next day—but in double tertians, the most prevailing type now in this neighbourhood, one is sufficient. Having done this the first day, I begin the next with a mixture consisting of forty grains of Peruvian bark, five grains of sal ammoniac, (muriate of ammonia,) and five drops of laudanum for a dose, in any convenient vehicle, repeating it every two hours, for six times, daily. It, however, must be so given, that the last dose be taken just before the expected accession, which it will either

prevent or moderate—and, if continued, the next paroxysm will certainly be prevented. This course must be pursued for four or five days, followed by a gentle laxative, sufficient to open the bowels, which, with some, are constipated by this mixture. To prevent a return, which will often happen until the frost sets in, thirty grains of Peruvian bark should be taken at a time, as is here customary, twice or three times in the forenoon of every day, or every other day, according to the type of the fever. In bilious fever the cathartics will be oftener necessary, before we can find an interval long enough to use the bark mixture. I have been obliged to give it every hour, because of the shortness of the apyrexia, and then I have begun as soon as moderate perspiration took place. This is not the fashionable practice at present, and some, to whom I have spoken of these medicines, could not believe them useful. But I have ample proof, in an experience of twenty years, of their great effect, when honestly administered—and not less so, that no disagreeable consequences follow their use. The doses mentioned are for adults, yet I find that children over three or four years require nearly as much.

My late friend, the celebrated Dr. William Baynham, prescribed this bark mixture with great success, and I had the first hint from him of the efficacy of sal ammoniac with the bark, but not a distinct communication, until he knew I had used it. In my first experiments, the sal ammoniac was mixed with the bark alone, and it proved so powerfully cathartic, that it did no good—but by adding laudanum to correct this effect, I got into a right use of it. It has always been considered necessary to evacuate the superabundant bile usually produced by or accompanying these fevers, and emetics were universally given for that purpose when I first began practice. These are now laid aside, and large doses of calomel substituted for the same purpose. Though it does evacuate bile largely, it as certainly increases the secretion of it, as any person may be satisfied by taking it in health. Whether in winter or in summer, bile will be evacuated by it—and, indeed, I think it probable, that its pur-

gative effect is entirely owing to its increasing the hepatic secretion, and that bile is really the purgative. A drachm of this medicine has sometimes been given at once, and with little or no effect as a purgative, where no bile has escaped. Considering it necessary to evacuate the bile, already in too great abundance, is it rational to attempt it by increasing the quantity? Does not, moreover, the increased secretion of bile, whether effected by the stimulus of these fevers, or the continued use of calomel aggravating the evil, produce a state of quiescence in the secretory organ when that stimulus is removed, and thereby give occasion to obstruction and enlargement of the liver? These complaints are coeval with the general use of calomel as a purgative among us, and are yet unknown, where that medicine is seldom used. I have heard this remark from various observing people not of our profession, and my own experience agrees with it. My objections are against the universal use of calomel as a purgative, or when other articles would answer every purpose, and do no harm. But there are cases when it must be used—and especially when the secretion of bile is scanty, it is truly serviceable. It is the common family prescription of it, as well as the unnecessary use of it by physicians, that, I doubt not, has introduced a new disease among us. I hardly remember in my practice a case of enlarged liver before the year 1800, except among hard drinkers, and now I very often see it where no spirit is consumed. What is the cause of this change?

Though easily cured, intermittents are constantly returning, from the time they first begin until the last of October, while our patients continue in the places which produce them. As before mentioned, the only preventive that I have used with advantage is the Peruvian bark, given in two or three doses in the forenoon of every other day, choosing that on which the previous fever was most severe. After these fevers, I have often prescribed the muriate of iron, which contributed much to the effectual restoration of health, and the prevention or removal of visceral obstructions. Treated with this medicine, patients

seldom have that living corpse-like aspect, so often seen to follow our fall fevers, or that half dead feeling, that hydropic diathesis, terminating too frequently in fatal dropsy—though it does not prevent the return of another attack, however well the patient may apparently be.

The continued fevers already noticed never recur in this way. Yet I believe some continued fevers do return in other years. These therefore must arise from some cause different from that which produces intermitting fever, or some addition or modification of it. They also appear at times and places where intermitting fever is never found.

There is a remarkable difference in seasons. Last summer (1822) was unusually sickly. More intermitting fevers existed, were not so easily cured, remained till very late, as well as began early: more continued fevers also prevailed, were very severe, and more fatal, were scattered all over the country, and not more frequent where intermittents were than in places where they were not. Nor did these prevail in particular families, and in most places not more than one of a family was affected, though I heard in one place that a whole family, of seven or eight or more, were very sick, and several died. The season was dry and warm from early in July till late in October, during which time there were no thunder clouds, or rather, few of them, and no high winds. The latter, I mean the state of the winds, I have long thought to be the principal cause of sickly seasons. Though miasmata are not so plenty as formerly, yet from the light winds veering about, and blowing often in the same day from every point of the compass—for in our driest season the wind changes with the sun, being from the S. W. in the morning, and gradually getting to W., N. W., N. E. and S. E. by night, and sometimes keeping in that course for many days together, and until the approach of rain,—the miasmata are thus accumulated, and perhaps concentrated, around the places from which they arise. The later in the season until frost, the more people are sick, showing an increase of force in the cause of the disease. But when high winds arise, and from the

west, as is generally the case in thunder clouds, the noxious articles mixed with the air we breathe are carried off. Certainly we have had less thunder and less wind with it for several years past than used to be, and more dry seasons—and, as already intimated, I believe the sickness in the fall has been more or less dependent on the wind. The heat, as indicated by the thermometer kept out of doors in the shade, has also been somewhat different. In the beginning of July, for a few days, it rises higher than formerly, perhaps to 98° or 100° , and in 1818 it was up to 104° . Yet, on the whole, the heat is more moderate, not often over 88° , though occasionally 90° and 92° . Formerly, from June to September, it hardly ever was below 84° or 86° during the night, and arose every day to 92° and 94° , and sometimes to 96° or more. Now we have it down in the night to 72° or 76° , and sometimes lower, during these months. Mild weather continues in the fall and through the winter, though there are a few days of cold as severe as ever, the thermometer descending for one or two mornings at a time to 6° , 4° , 2° above, and even to 3° and 4° below zero, but presently rising up to 18° and 20° . The extreme cold of last winter was 6° , on the morning of the 3d of December, and once in January and February to 8° . We had a few light snows, none of which however exceeded an inch in depth. The spring begins early, but frequent frosts and cold keep back vegetation as late as May.

From 1785 to 1797 the river was frozen over every winter so as to allow crossing on the ice, for several days together, and sometimes for one or two weeks. In 1790 and 1791 the ice began about the 23d of December and continued till March. I do not remember to have seen the river passable on the ice since January 1797, and if so, not for more than a day or two, and I think only one year. In those times the spring was short and summer long, the fall also short and winter long. These winters produced pleurisies in plenty, and few continued fevers in summer: now we have nothing that I can call pleurisy, (I did not see a case last winter) and continued fever every summer. The manner of living

among us is also much changed. Tea and coffee are used for breakfast, and in the evening, even in the cabins, in place of meat, milk, and bread: dinners are pretty much as formerly, though more delicacies are provided. Every body was accustomed to ride or walk in all weathers—walking is now out of the question, and no women ride, for every genteel family has a carriage and every overseer a gig. May not these circumstances in some measure contribute to the frequency of continued fevers among us, (but unless I am much deceived contagion has also had its share, though not since the year 1815).

ART. VI. *Remarks on the Obliteration of Wounded Arteries.*
By JOHN BAXTER, M. D. of New York.

IT is well known to all conversant with surgical writings, that it has long been a question whether or not a wounded artery may be healed without an obliteration of its cavity—and that many eminent surgeons have and still do entertain an opinion that it may take place. The bearing of the question on practice is not perhaps so great as we should at first imagine, or so important as to warrant a lengthened discussion—since we cannot always ascertain the extent to which an artery is opened, on the knowledge of which it would seem the treating a case without obliteration depends in a great measure. It is, however, a pathological inquiry worthy of notice, the affirmative of which may allay many apprehensions, in some particular cases in which measures for securing the vessel above the wound cannot be taken, and where we must resort to other means for arresting hemorrhage. J. L. Petit first satisfactorily explained the process by which nature effects this by means of a clot or

coagulum*—and Dr. Jones, in his work on hemorrhage, has fully confirmed this doctrine, and says he has very little to add to what Petit has already given.†

In corroboration of what he taught Mr. Petit exhibited to the Academy of Sciences in 1735 the arm of a man who died suddenly, two months after the opening into an artery had been cured. The lips of the wound had not been joined, the hemorrhage had been arrested by a clot which plugged the opening into the artery, and which had adhered to the whole of its circumference. That if the man had lived the artery would have burst open, as asserted by Mons. Boyer, is but a *supposition*, destitute of foundation, for why this clot should not answer the same purpose in a lateral incision of an artery as the bouchon when the artery is completely divided, has never yet been shown, and there is every reason to presume that this cure would have been permanent.

Had Petit not believed what he *saw*, and the fact not been as maintained, surely that surgeon would not have exhibited it as a proof in support of his doctrine, and an example of a spontaneous cure—and the Academy would have made known the fact that the artery was obliterated had it been otherwise. Instead of this we find them merely dissenting from the *conclusion* of Messrs. Petit and Foubert, without stating on what grounds—and this decision expresses their opinion only, that those gentlemen, in contending that compression on the dilated coats of an artery rendered it as strong as before dilatation, were not justified in admitting the formation of a coagulum *competent to resist* the impulse of the blood at the wounded part in a false aneurism—or that the cure could not have been permanent—

* “J L. Petit a dit que dans ce cas il se forme un caillot qui bouche l'ouverture du vaisseau *sans oblitérer son canal*, dans lequel le sang continue de circuler comme a l'ordinaire.—*Dict. des Sciences Medical*, vol. 20, p. 376.

† See Jones on Hemorrhage, and Memoires de l'Academie des Sciences, 1735.

for they must have been satisfied that the opening was then closed and the canal of the artery pervious.

We have also* a case given by Scarpa, which was communicated to him by Monteggia, a celebrated professor of surgery at Milan, who states, that the patient was cured of his aneurism (false) in forty days—and dying about twenty months after the injury, every thing about the vessel was found in a natural state, except a dark coloured body attached to the external side of the artery, about the size of a nut.† “I afterwards,” says Scarpa, “proceeded to examine attentively the pathological state of the preparation transmitted to me; on viewing it from within, a solid cicatrix could be seen.” He moreover distinctly asserts, that he laid open the artery opposite the wound and dark coloured body—gives three views in a plate of it, and describes its appearance, stating that the opening was found stopped by a clot forming a cicatrix adhering to the lips of the wound.

It is the case in question which is alluded to in the Elements of Surgery, by the late professor Dorsey, as an instance of wounded artery treated without obliteration; although in reference to it Scarpa says, “that this beneficent process takes place cannot be denied, but is of rare occurrence—and the adhesion of the thrombus to the lips of the wound is so weak and imperfect that it cannot be regarded as a radical cure.” The Italian professor, it must be recollected, did not hold to the distinction between true and false aneurism—entertaining the peculiar and strange doctrine that all aneurisms are but effusions of blood from an ulcerated, lacerated or wounded artery, or steatomous degeneration. His remarks, therefore, as quoted in another part of the Elements as applicable to true aneurism, are of a very general nature—and it is not exactly apparent, that Scarpa intended them as so applied: they, however, admitted of exception, since

* See Scarpa on Aneurism Edinburgh edition, 1808, page 190.

† The accident occurred in bleeding, 21st March 1801. The patient was cured the beginning of May, and died of an affection of the lungs with suppression of urine, in Dec. 1802.

he gives this case as an acknowledged instance of an artery healing without obliteration, though not as a radical cure. Dr. Dorsey, however, dissents from this opinion, and thinks it a decided instance of radical obliteration: he nevertheless gives Scarpa's opinion *candidly*.

But in the case recorded in the New-York Medical and Physical Journal, Vol. III. we have an instance of a different kind: for although no evidence was obtained by dissection and the injecting pipe, yet as the patient survived, and the vessel has remained pervious for several years after being cured, as complete evidence and authority were given to prove the fact asserted, as those on which rest a large part of the facts established in surgery and medicine.

The patient (Dr. Mease, of Philadelphia) is a highly respectable member of the profession, and at that time was attached to the Lazaretto of that city—and from his account of the symptoms, there is no reason to doubt that the artery was wounded, and a false aneurism formed.* The gentleman to whom the communication was made, is acknowledged by all to be at the head of the profession in this country, and surpassed in surgery by none in Europe. “You will recollect,” says Dr. Mease to Dr. Physick, “that I observed to you, at the time I showed you my arm, that I should need your assistance in the course of the winter.” “Dr. Physick, having examined the arm, was perfectly convinced of the existence of varicose aneurism, and did not entertain the faintest hope of a spontaneous cure:” but if the tumour formed by the accident had subsided, if the peculiar whizzing sound had ceased, if only a hard tubercle could be perceived at the spot, and if, since the asserted cure, “the artery pulsates like that in the other arm, at the bend of the elbow and wrist,” we have every evidence that any case of cure, in which the patient survives, can possibly admit of: and, by the account given in the Journal, the swelling, which was as large as a filbert, gradually diminished, and “before spring, the arterial and

* The accident occurred in bleeding, in September, 1795.

venous blood flowed in their usual channel ;” and ever since the cure, the artery has been pervious, and pulsates like that in the other arm. Surely the gentleman who saw and examined the arm, and pronounced on it, was competent to decide in the case.

It has been affirmed that the cases of Petit and Scarpa would not have proved radical and permanent cures. This is more than the surgical foresight of the Academy, of Scarpa, and of the venerable Boyer could determine—and now a case is presented, on the best authority, in proof that no obliteration had taken place, although the patient did not die to admit of dissection.

The strong collateral evidence in the cases recorded by Foubert has not been alluded to. Two of these seemed to promise a cure, had the patients survived.* They concur to support the opinion, that a cure may take place without obliteration, of which the three cases under consideration are “decided instances.”

Since experiments on brutes have demonstrated that wounds of their arteries will heal without obliteration, even when divided to the extent of one fourth, and without leaving a vestige of the opening, as Jones has fully established, it never yet has been shown why the same should not take place in the human body under the same circumstances. It is difficult to imagine why the lips of a wounded artery should not have the power of uniting by the first intention or by adhesive inflammation, as well as the inner surfaces, when brought into contact ; or its cut edges, when divided by a ligature or knife, or those of a vein : and Dr. Dorsey says, that so far as he has seen, the circular fibres have not contracted, but the lips of the wound remained in contact in arteries under his inspection.*

Of the manner in which the reparation is effected, little can be added to the doctrines and observations of J. L.

* The openings as usual were found stopped by clots.—See Scarpa's work on Aneurism.

* Elements of Surgery, vol. i. p. 140.

Petit, after being so ably supported by the experiments and remarks of Dr. Jones.

The formation of the bouchon, clot, or coagulum, by the effused blood extending through the wound to the couverte, or layer of coagulated blood, between the artery and its sheath, for the temporary foundation of the future process, which is achieved by the extravasation of coagulating lymph, to form a permanent union, and the consequent gradual absorption of these effusions when the cure is performed, identifies it very plainly with the adhesive inflammation of Hunter, of which there is no reason to doubt that the coats of an artery are as susceptible as any other tissue of the human body; for that nature should have left so important a part unprovided with the means for a cure common to the rest of the body, seems improbable.

How far this question will interfere with our practice of tying wounded arteries, may admit, perhaps, of farther consideration.

That all large arteries should be secured when wounded cannot be a matter of dispute. But though, as a general rule, it is necessary to tie every important artery opened, yet cases may and do occur, in which it is not possible to apply the ligature. In accidents to children it is peculiarly difficult, and distressing to parents, and pressure may be used often with as much utility. In particular situations, also, it may not be possible to apply a ligature even to large arteries when wounded, and to which a well regulated degree of pressure might effect a cure. I would not be misunderstood to countenance the leaving important arteries to pressure in every case in which we cannot reach the artery with facility—the ligature is too important an auxiliary to be laid aside so lightly: but still I can have no doubt, that many cut arteries would heal without obliteration which we often feel under too great a necessity of tying.

ART. VII. *Remarks on the use of Sanguinaria Canadensis in Acute Rheumatism.* Communicated by WILLIAM ZOLLICKOFFER, M. D.; corresponding member of the Medico-Botanical Society of London; honorary member of the Society of Natural Sciences of St. Gall, Switzerland, &c. &c. &c.

AMONG the great number of our native vegetables, which are known to possess active and useful properties, there is perhaps none, that can be considered in any respect superior to the *Sanguinaria Canadensis*, in the treatment of acute rheumatism. Its virtues as an emetic, cathartic, diaphoretic and expectorant, have long been known to the medical practitioners of our country—though it is seldom exhibited internally, with the view of producing these effects. The root is the part generally employed for medical purposes, and when injudiciously exhibited internally, is capable of producing the most serious and alarming consequences. When administered in doses of from eight to fifteen grains, it operates as an emetic or cathartic: in doses of less magnitude, its effects are diaphoretic and expectorant. As a tonic, it has been justly recommended by some writers. Its utility as a remedy of this kind, I have frequently witnessed, in greatly increasing the appetite and tone of the stomach—and, indeed, I am at present in the habit of prescribing it with this view, in the form of a saturated tincture, prepared from the recent root, in doses of from eight to twelve drops, twice or thrice a day, in any convenient vehicle. This root has been highly recommended, as a remedy possessing considerable powers, and of much importance in the treatment of various diseases. But it would be altogether foreign from the object of the present communication, to introduce them on this occasion—and I should, indeed, be unable to impart to the profession, any thing in support of its successful application, in those cases of disease, that would be the result of a course of experimental investigation. To revert however more particularly to the subject, I

with much pleasure present the medical public, with the following cases of acute rheumatism, in which I have directed its internal administration, with the happiest and most unequivocal success—a disease that not unfrequently calls forth the sympathies of the physician, and that at times bids defiance to the most energetic plan of treatment. This remedy I have used advantageously, after having resorted to the lancet, cathartics, refrigerants, diaphoretics, and the application of epispastics, as well as other local means, unsuccessfully. I am indebted to Nathan Smith, M. D. &c. from whose writings on inflammatory rheumatism, I first received my information of the sanguinaria having been used in this distressing malady. The high standing and respectability of character of this learned gentleman, was the principal inducement with me to employ it—and the cases in which I have as yet given it, fully persuade me of the correctness of his statements.

The following are the cases in which I have employed it with advantage.

Case 1.—In the fall of 1820, I was called to visit Mr. G——n, who, at that time, I found complaining of very distressing pains in his shoulder, elbow and wrist, with a frequent, full, and hard pulse. I took sixteen ounces of blood from his arm, and ordered a dose of calomel and jalap to be taken, which operated freely. Upon paying him the second visit, I found him labouring under considerable febrile excitement—and his sufferings were represented to me, as not being mitigated in the least degree. I then drew twelve ounces of blood from him, and directed, with a view of producing a determination to the surface, a combination of nitre and emetic tartar, to be taken every three hours.

On seeing him the next day, his fever appeared to be somewhat moderated, though unaccompanied by the least diminution of his suffering. I then directed the application of two blisters, one upon the wrist, and the other above the elbow, which unfortunately afforded no relief. After this I exhibited the tartarised antimony, in doses sufficiently

large, to excite and keep up a constant nausea, for at least twelve hours, and with as little success. I then ordered thirty drops of the following prescription to be taken every three hours, until the patient complained of a sense of sickness at the stomach, which was maintained for at least six hours, when I was, to my great satisfaction, informed that he was considerably relieved. The next day, I directed the same quantity to be given in the usual way, and he became perfectly cured. The formula is as follows:

R Rad. sanguina. canad. contusæ, ℥iv.

Spt. vini. rect: ℥viii.

M. ft. tinctur.

Case 2.—Early in the spring of 1821, I was sent for to visit Mr. P——s, whom, I found labouring under a most violent attack of acute rheumatism. I concluded at once to enforce the antiphlogistic mode of treatment, which I carried to a considerable extent, without the least apparent success. Next I directed the use of the *tinct rad. sang. canadensis*, in the dose of thirty drops, every three hours, in combination with eight drops of laudanum, until he complained of nausea, which was to be kept up for several hours. This gave him some ease in a very short time—and in two days he was free of pain.

Case 3.—In the fall of 1821, a case claimed my attention, in which I prescribed internally of this same tincture in the common way, and in the ordinary dose, after resorting to venesection, and the use of suitable cathartic medicines, with the most decided success.

Case 4.—During the spring, a case of the disease under consideration came under my care, in which I used the remedy as above recommended, in combination with laudanum, and with the pleasure of seeing my patient relieved, in two days from the time he first commenced with it. In this, as well as every other case in which I have exhibited this remedy in conjunction with opium, I was led to the combination, by considering an anodyne to be adapted to the circumstances of the patient.

In closing this paper, I have merely to observe, that I have every reason to believe, the narcotic property, stated (by the celebrated and long to be remembered Professor Benjamin S. Barton,) to reside in the seeds of the *sanguinaria canadensis*, does not exist. To this conclusion I am led, by the circumstance of Mr. Lucius F. X. O'Brien, a gentleman who is now prosecuting his studies under my direction, having at my suggestion, taken a considerable portion of the contused seeds, as much as two drachms at a time, without the least effect of this kind.

With a view of further determining its properties, I macerated in alcohol for five days, six thousand four hundred and forty grains of the recent root, from which, by submitting it to the process of evaporation, I obtained three hundred and sixty grains of alcoholic extract; and from the same quantity of recent root, I succeeded in procuring three hundred and ten grains of aqueous or watery extract. The few experiments that I have made with the extracts, lead me to infer, that the alcoholic possesses rather more activity than the watery extract, and that the acrid principle resides likewise in a greater proportion in the former.



ART. VIII. *An Examination of some Medical Doctrines, compared with those of Dr. Broussais.* By M. A. FODERA, M. D. Paris, 1821. Translated from the French, by ROBERT E. GRIFFITH, M. D.—(Concluded from No. 11.)

Opinion of Dr. Broussais on the Seat, Nature, and Treatment of Fevers, and other Gastric Affections.

WE will now rapidly review the doctrines of Dr. Broussais on the gastric inflammations, or continued fevers of authors.*

* Leçons du Dr. Broussais, sur les phlegmasies gastriques, dites fièvres continues essentielles des auteurs, &c. Par E. Caignou et A. Quémont. Paris, 1819.

We have already observed, that the digestive canal (according to Dr. Broussais) is the primary seat of far the greater number of pathological phenomena;—that a knowledge of the irritations and inflammations of the stomach is the foundation of medicine, and consequently the gastric affections are the basis of his doctrines.

As the ideas given in this work are recognized by Broussais, to whom it is also dedicated, we shall name him when quoting from it, rather than his pupils, whom we consider as merely the compilers of it.

In his “General Considerations,” Broussais gives a short account of the sympathies, a correct knowledge of which he deems necessary, in order to discover the degree of importance the different organs of the body exercise on each other, as well as on the general economy.

He commences with the heart, as the principal agent in, and regulator of the circulation and pulse. He demonstrates its sympathetic relations with diseased organs, and the variations the pulse undergoes: the influence of these sympathies has proved to him, that the heart is the first affected, and the stomach receives an impulse from it almost instantaneously—in fact, when an organ is irritated to a certain degree, the state of the gastric viscera is modified at the same time as that of the heart.

In fever there is, says our author, acceleration of the pulse—and from the gastric irritation, loss of appetite, alteration of the lingual mucus, thirst, desire for cool and acidulated drinks, sense of heat at the epigastrium: and from gastric sympathy, a feeling of fatigue in the body and limbs, with a tendency to sleep, &c.

He defines fever to be, the coincidence of an excitement of the heart with gastric irritation: it appears at present, however, that Dr. Broussais has somewhat modified this definition, by also admitting, that there sometimes exists an irritation of the brain.

In order to systematize the sympathies which are developed in a state of disease, he begins with those of the exterior of the body—first treating of those of the skin and

cellular membrane, of the ligaments and articulations—those of the brain, lungs, heart, pericardium, mediastinum, diaphragm, and liver—then those of the throat and mucous membrane of the pharynx—afterwards those of the digestive canal, considering those of the stomach and the smaller and greater intestines separately—he then speaks of the sympathies of the bladder, kidneys, testicles, and uterus—and finally those of the peritoneum. It is evident that this arrangement is entirely empirical, and is a great fault in a pathological work, where the sympathies ought to be ranged according to the influence that the organs from which they are derived exercise on the actions of life, or the degree of sympathetic influence they enjoy over the animal economy when in a diseased state.

He then establishes propositions in relation to the development of the sympathies, and particularly the following: that the irritation of an organ, developed sympathetically, by the disease of another, can become as violent as the original disease, and even surpass that which occasioned it—for instance, if an emetic be given incautiously in a case of inflamed joint, it may occasion a gastro-enteritis, and the first inflammation disappear by a real metastasis.

After thus disposing of the sympathies, Broussais next explains the phenomena and consequences of inflammations in the animal economy, whether acute or chronic: it is here he treats of the termination of acute inflammations. He considers fever in its relations with local alterations, and then proceeds to chronic inflammations, and particularly the sub-inflammations, or irritations with sympathetic disease, to distinguish them from sanguine irritation. He afterwards examines the causes which determine inflammation, and remarks that the more the vascular irritation is active, so much the more are the sympathies developed, and that the diseased organs exercise a marked influence on the heart and stomach.

He finally gives the method of treatment in the phlegmasiæ, which consists, 1st, in removing all the exciting causes: 2d, in the subtraction of blood: 3d, in the use of emollients

and sedatives : 4th, in the use of revulsives properly administered : 5th, in the use of tonics and astringents according to the indications. He recommends to physicians to attend particularly to the gastric canal when they administer stimulants, otherwise a gastro-enteritis may be the fatal consequence : he also recommends great circumspection in the employment of food, which may counteract all the effects of a proper treatment.

The opinion of Broussais as to the action of remedies is remarkable. "The success obtained by stimulants," says he, in speaking of the treatment of a sub-inflammation of the skin, "depends less on the action which they produce on the general economy, than that which they induce on the tissue on which they act primarily : for example, when we administer sudorifics, diuretics, emmenagogues, or sialogogues, we shall err greatly if we suppose they act directly on the skin, kidneys, womb, or salivary glands in augmenting their action : it is by a sympathetic relation with the stomach, which, being thus stimulated, re-acts on these organs." Page 75.

This opinion, though manifestly exaggerated, is similar to that entertained by Van Helmont and Rega. By its powerful sympathetic relations, the stomach may be concerned, when medicines are introduced into it, but their effects are also manifested in every portion of the system, for the action of substances introduced into this organ is in proportion to their solubility, and consequent facility of absorption. Thus morphine, and its acetate, offer us this difference, that this alkali, which is the active principle, has little effect when given alone, but exercises great power when dissolved in acetic acid—though this very substance is its true contra-stimulant. The reason is, that this salt of morphine is very soluble, whilst the alkali is not. Medicines, and particularly those liquids which are absorbed with the greatest rapidity by the lymphatics and blood-vessels, preserve their original properties—the stomach not changing their composition by digestion, as direct experiments have shown, by detecting these substances in the blood

and secretions.* It is also proved that the mercurial preparations, cinchona, cantharides, oil of savin, opium, aloes, and the antimonial preparations, &c. have the same action when applied to different parts of the body, as when introduced into the stomach. Their action is more or less powerful and prompt, according to the energy of the absorbing system in the spot where these substances are applied—and we know that it is at its maximum when they are introduced directly into the veins, as was practised on large animals at the veterinary school at Copenhagen. Those substances having a powerful action, and easily absorbable when introduced into the lungs, have an almost instantaneous action, as they are immediately absorbed, and carried directly into the circulation: finally, the famous experiment with the pig's bladder, proves that an emetic has the same action although the stomach be extirpated.

“*The general considerations,*” refer to all the inflammations of the body, and as our object is to examine particularly what he says on the affections of the alimentary canal, we have passed rapidly over this part. We will now analyse his special pathology, limiting ourselves to the gastric inflammations.

In this division, he commences with the gastric phlegmasiæ, for the same reasons which have induced other medical writers to treat of fevers before other diseases. Cum nullus detur morbus fere, qui non sit conjunctus cum febre: in changing the term fever to that of gastro-enteritis, he agrees with these authors as to the manner of studying diseases.

These gastric inflammations are the principal subject of the work we are analysing. Broussais, in speaking of the importance of the stomach, considers it as the great centre of the sympathies, and even regards it as endowed with an internal sense, which resides entirely in its mucous coats.

We beg leave to observe to Dr. Broussais, as regards

* See Dissertations by Emmert, Magendie, Tiedeman et Gmelin, &c.

this internal sense,* that the averment is purely in words, and does not exist in fact. Yet, if we understand by senses, all those parts of the body which are sensible or endowed with feeling, there is no doubt that he is right, and we may even extend the number of senses still further. But if we understand by the senses, as they are usually defined, organs capable of conveying to us a knowledge of the properties of external objects, we must limit the number, and thus entirely exclude the internal senses.

The following deserves consideration: "for a long time the functions of the stomach have been misunderstood. Considered in relation to the process of digestion, the stomach has been regarded as a sort of inert recipient, or at least limited to its action on the food, and the sensation of hunger referred to the brain. It has been properly observed, that the centre of sensation is in the epigastric region, but some have located it in the aponeurotic portion of the diaphragm—while others have placed it in the solar plexus. Bichat alone has approached the truth. We are happy at last in finding occasion to state, that the mucous membrane of the stomach is the centre, which has been so long looked for—it is upon this internal sense that the etiology of fever is founded," page 87. We may conclude from this passage, that modesty is not a predominant virtue of Dr. Broussais, neither can we discover his frankness in the compliment he pays to Bichat. It is not necessary to remark, after what we have formerly observed, that we should give the credit to the illustrious professor from Louvain, of having observed, that the stomach was endowed with an exquisite and delicate sensibility, which being affected, acts on the whole nervous and vascular system. From this remarkable fact, he deduces the etiology of fever, although he was not *happy enough* to consider it as the centre of sensation, but this happiness must, according to Rega, be awarded to Van Helmont, who fixed the seat of the sensitive soul in the

* See Journ. Univ. des Sciences Medicales. Vol. XII.

stomach.* Broussais, therefore, does not gain much fame by theories which were advanced by his predecessors : it perhaps, may be adviseable to quote what is said in the preface to his work. "The germ of his doctrine (this is said by his pupils,) is not to be found in any modern work, and the only ancient author in which any trace of the doctrine is to be found, is Hippocrates." Page 7. This is truly a proof of erudition ! but they thought it prudent to invoke powerful assistance, and thus place themselves under the ægis of the father of medicine. From what Broussais himself says, in his "Examen," in analyzing and criticising the works of Hippocrates, we are led to believe, that the pupils did not consult their master when they wrote the above.

In the gastric inflammations, Broussais treats in the first place of gastritis, next of gastro-enteritis, but has forgotten to mention enteritis. The gastro-enteritis is, according to him, a disease which, by the modifications of its sympathetic symptoms, may present itself under different forms, eight of which he describes, that is, those fevers which other authors have called bilious, adynamic, ataxic, burning, mucous, &c. &c.

He also considers the contagious affections, as gastro-enteritic, such as typhus, yellow fever and the plague.†

He describes the varieties occurring at different ages. We shall pass over the description of these fevers, as they are known to all physicians. Dr. Broussais believes, that he can distinguish when the inflammation is in the stomach alone, or when it extends to the intestines, and details the symptoms by which gastritis may be known from gastro-enteritis. In his "Examen," he nevertheless allows, that

* *Etsi egitur fluida ratione stimuli sint nonnunquam causæ occasionales febris, frequentius tamen méa quidem opinione stimulus ille febrium productur extra viam circuli in hoc vel illo residet viscere, hanc vel illam obidet partem nervosam, et in sensibili quodam hospitans loco per consensum totum reliquum systema nervosum ac consequenter vasorum genus universum afficit. Hic jam vero locus quis est ? Hæc pars sensibilis ac nervosa ? Viscus illud notabile ? Certe quotidiana praxis et medicorum autoritas hunc esse sæpissime ventriculum non sinit dubitare.*" Page 143.

† See *Examen*, page 429.

it is difficult to recognise these affections. (Prop. cxxx. &c.) After having described the symptoms of gastro-enteritis, he details the morbid appearances of the mucous coat, as shown by dissection. He here agrees with Prost, without however, citing this author, that in inflammation of the intestines there is seldom much pain, and that where there is, the peritoneum is also affected. In the "Examen," we find a great number of passages where Broussais observes, that acute pain is a symptom of peritonitis, and that inflammation of the intestines, on the contrary, does not occasion it. (Prop. cxxxiii.) But he always forgets to render to Prost the honour of having made this important discovery :* he also remarks, that invaginations of the intestines do not occasion ileus, which fact was observed by Roederer and Wagler—nevertheless, physicians have not profited by it, and the treatment of ileus continues to be absurd and inefficient.

The proofs of inflammation of the mucous coat in gastro-enteritis, are deduced by Broussais from the symptoms and treatment, as is shown by the thirst, the desire for cool drinks, and distaste for stimulants—the redness of all the visible mucous membranes, and other sympathetic symptoms, such as the diminution or augmentation of heat, pain in the limbs, &c. according as we treat it by antiphlogistics or stimulants : moreover, by what is observed on dissection, as the redness of the mucous coat of the alimentary canal, when the patient dies in the commencement of the disease : should it continue, the membrane becomes of a reddish-brown—there is a thickening and a kind of friability, and at a more advanced stage, it becomes of a blackish colour; and finally, we observe a great quantity of mucus with ulcerations in different places, even in the large intestines,

* In a subsequent work of Dr. Broussais, "*Histoire des Phlegmasies Chroniques*," he gives Prost credit for having observed this fact. See Vol. II. page 7. Note. G.

where a diarrhœa has preceded the death of the patient: if the disease becomes chronic, we observe white and red excrescences in the mucous coat, and in the lymphatic ganglions of the mesentery.

The treatment he employs to combat this affection, is rigorously antiphlogistic: it consists in a strict diet, in the administration of acidulated and emollient drinks, in the application of leeches to the epigastric region—while emetics, purgatives and tonics are prohibited as hurtful. He adds, that Galen, Baglivi, Sydenham and Stoll, have admitted the efficacy of bloodletting, but that they did not obtain all the success they expected, because they employed at the same time, emetics, purgatives and tonics. What we have already said with respect to the opinions of Baglivi, proves clearly, that the above assertion, at least in regard to him, is erroneous.

Chronic gastritis is the result of an acute disease, presenting itself under several forms. 1st, Nearly resembling gastritis. 2d, With milder symptoms. 3d, Under the form of dyspepsia—and lastly, with all those anomalous symptoms constituting hypochondriasis, which according to our author, is a chronic gastro-enteritis. Bulimia, is also considered by him to be the effect of the above disease, with a predominance of gastro-duodenal irritation. (Examen, prop. clii.)

Chronic gastritis, although gradually destroying the stomach, does not always hinder digestion from going on properly. To ascertain this species of affection of the stomach, he advises that irritating aliment should be given to the patient, and then emollients—the last being digested without pain, whilst the former occasion a painful feeling, proving that the stomach is diseased.

When chronic gastritis is improperly treated, the patient loses his appetite, becomes thin and dies of consumption, or a scirrhus or cancer makes its appearance, presenting different symptoms, according as it occupies the cardiac or pyloric orifice, or the lower curve of the stomach. If our

author has forgotten to treat of acute enteritis or inflammation of the small intestines, he at least has spoken of the chronic stage. The most part of the symptoms of chronic enteritis are confounded with those of chronic gastro-enteritis, nevertheless what constitutes the lientery, in children appertains to chronic enteritis, which afterwards occasions the engorgement of the lymphatic ganglions of the mesentery, corresponding to the inflamed parts of the intestines.

The treatment of chronic gastritis and enteritis is much the same as that of the acute phlegmasiæ, with some modifications suited to the chronic state: regimen and the antiphlogistics are in general the means employed—and in some cases of chronic gastritis and enteritis a strict diet was continued for forty, sixty, and eighty days, the patients during this time taking only water or some light and nourishing beverage, as decoction of apples, by spoonsful: stimulants are prohibited.

Here finishes all that relates to the affections of the stomach and small intestines, and we shall close our analysis of the work, although he also treats of the inflammations of the large intestines, of the cellular tissue, and skin, with which gastro-enteritis is complicated, as it is with all other diseases of violence, “cum nullus detur morbus fere, qui non sit conjunctus cum febre.” We must therefore always pay particular attention to it in these diseases.

In the work we have just analysed, there is a void which should be filled. It is, that after having treated of continued gastric inflammations, Broussais ought not to have omitted the intermittent, which, according to him, are the same as the intermittent fevers of other authors: he would then have agreed with those writers, who have always treated of intermittents after continued fevers.

Though the doctrine of Broussais relative to the seat, nature, and treatment of fevers be not new, he merits great credit for having perfected it, and particularly in having called the attention of physicians of our time to the study

of the affections of the gastric organs, which exercise a great influence in the practice of medicine. The talent of Broussais is particularly conspicuous in the production of unity in this doctrine, which, as we are acquainted with it, we think it our duty to give a general view of its great advantages.

General View of the Advantages of the Doctrine of Broussais.

By this doctrine, the seat of diseases is, for the most part, better determined—the action of morbid causes more correctly appreciated—the treatment rests on surer and more precise grounds—and consequently, it is pursued with greater success. The cases in which general or local blood-letting should be employed, or where we should cause a revulsion in inflammatory disease, are fixed on a more solid and better established basis—as well as of the necessity of continuing the antiphlogistic treatment until perfect health is re-established. But the action of a great number of remedies is not yet well determined—for what we know of the *materia medica*, is in general the result of incomplete observations or badly conducted experiments. Therapeutists not having a precise knowledge of the affections of the stomach, it results that the action of remedies on this organ cannot be well appreciated. The phenomena they produce in the animal economy vary according to the state of the stomach, and consequently the same remedy in the hands of an ignorant practitioner will sometimes do harm and sometimes good, cause violent symptoms or produce its proper effect on the patient. Dr. Broussais has not, nor is he able to make all the necessary observations—such must be the care of those who follow him—yet it appears to us, that he places in the class of stimulants all remedies which are not absolutely antiphlogistics. Well directed experiments and accurate observations will show if he be right.

On his General Doctrines.

In regard to his doctrine of irritation, we think it is as plausible as any other theory which employs words to indicate the hidden and inscrutable action of anomalous nutrition constituting diseases—or to demonstrate that a diseased organ produces sympathetic disorders. Thus the doctrine of irritation expresses a general fact known only by its effects, of the character and progress of which, however, we are ignorant.

But like all who have invented pathological theories, Broussais connects his hypothesis of irritation with the mode of cure, and makes use of it as well to explain the cause of diseases and their symptoms, as the nature of these diseases and the mode of treatment. He knows perfectly well that any disease, inflammation, for instance, can be cured by remedies which appear hurtful—such as stimulants, or in other words a disease of irritation may be cured by irritants. His theory, therefore, fails when he wishes to define the nature of diseases and the action of remedies—for the true nature of diseases consists in unknown and inscrutable movements, and the action of remedies depends on these movements and such as produce the sympathies. His general theory, therefore, may be good considered in a pathological point of view, without reference to treatment, though it fails, as do all others, when practically applied.

ART. IX. *Observations on Yellow Fever.* Read before the Medical Society of the District of Columbia. By B. WASHINGTON, M. D.

“Quod medicorum est,
Promittunt medici tractant fabrilia fabri.”

TO the younger part of the profession, who may not be aware of the importance of applying in season, the powers of the healing art, in subduing acute diseases, we offer some observations on the treatment of yellow fever. Our remarks contain nothing novel, and we hope they will excuse us for refreshing their memories, by reverting to the most simple and familiar principles, or facts, on which the science of medicine has been founded. The position, that the diseases of the United States are becoming daily more fatal, cannot, we think, be denied: that these diseases are of a more malignant or intractable character than formerly, we have, in our opinion, no just grounds for admitting: the cause then of this progressive mortality, must be sought for elsewhere, and we are irresistibly led to the conclusion, that it will be found mainly in the treatment—though the effects of habit and customs, together with the results from agricultural changes on the face of the country, may exert some, possibly considerable influence. On the nature and treatment of yellow fever, to which we shall more especially refer, all the talents and industry of the profession have been unremittingly directed, and as we shall be guided by the lights others have placed in our way, and use only a part of the materials with which they have so abundantly supplied us, we hope to escape the charge of arrogance, or an unjustifiable attempt towards innovation. But we must repeat, that those just setting out in the profession only, may find some useful hint, whilst to the experienced physician, we have nothing to offer in the few desultory observations that follow.

The yellow fever for the most part makes its attack very

suddenly. The patient may have eaten on the day, or the preceding day heartily, perhaps, more so than usual. This he has been disposed to do from a sense of languor or debility, which he erroneously imagined to be a genuine appetite, from an increase of power in the digestive functions. In the course of the evening the fever makes its appearance, sometimes preceded by rigours, in other instances, without any chilly sensation. All the symptoms of yellow fever are too well known, to require to be minutely detailed here. The patient frequently presents the appearance of a person suddenly overcome by some intoxicating draught. The eyes are red, dull, suffused with more or less of a muddy or yellow tinge. There is a dryness of the mouth, together with a faltering of the speech, and a degree of indifference to surrounding objects. The patient not unfrequently appears quite contented, often requesting to be left to himself, and becomes wearied and impatient if much importuned. The parallel may be extended further: when the pulse is felt it is found slow and labouring, more or less obstructed. The tongue is florid on the edges, with some whiteness of the papillæ, like the effect of flashing gunpowder in contact with a metal. Respiration is more or less affected, generally indicating some uneasiness. These are a part of the train of symptoms, constituting the most important stage of the disease, that of oppression, in which medicine will afford the most certain relief if promptly administered: but if it be delayed, or not used in a bold efficient manner, the critical period may pass by in a moment, and the opportunity of relieving the patient be irretrievably lost. To this stage of the disease our inquiries will be mostly directed.

Before the food is reduced to chyme by its solvent powers, the stomach remains closed at its lower orifice, as we have been informed by Bichat and other physiologists. It is well known, that its healthy functions are suspended on the first invasion of acute disease, or when any strong impression whatever is made on the system. Violent exercise, excessive stimulation, pain, either from mental or physical causes, all the passions, will produce this effect in a manner suscep-

tible of the plainest illustration. However keen the appetite, sudden joy, anger, fear, grief, will destroy it with the quickness of thought—in an instant it is gone. From these interruptions, the digestive apparatus becomes variously affected. Sometimes the stomach will remain passive for a long period: the food is not materially changed for many days—while in other instances, the greatest commotion is immediately manifested, and sickness, pain, and vomiting ensue. This conservative law of the animal economy, for such it may be deemed, it is curious to trace through many different species of animated beings. There really appears something like intelligence in the stomach, for whenever a shock is sustained, or an alarm given, it immediately suspends its operations, and when the general impression is considerable, and the powers of nature are not too much paralyzed, it makes efforts to get rid of its contents, as if aware of the mischief they might produce in the struggle that is to follow.

The first indication then in the treatment of yellow fever, must be to evacuate the stomach, and there could be no hesitation in proceeding to effect this, did we not know by long experience, that the stomach after a vomit has been administered, becomes every moment more excited and disordered, until fatal symptoms, either arising from, or evidently hastened on by the remedy, take place. Witnessing so generally this result from emetics, they have been very universally condemned. But the reason why so much mischief has followed their use we will endeavour to point out, whilst we at the same time confidently recommend them, as by far the most salutary means that can be adopted in yellow fever. Administered in the ordinary manner, emetics are followed by large draughts of fluids, alternately distending and emptying the stomach, and keeping up the vomiting until vitiated bile, or some other irritating matter finds its way through the pylorus. What we propose then, is to exhibit one of the oldest compounds in medicine, an emetic conjoined with a cathartic, which will, after ejecting the immediate contents of the stomach, cease to excite fur-

ther that viscus, and exert its purgative property. But before proceeding further, we must make some remarks on the pathology of yellow fever.

The disease has been variously located by authors: the stomach, the liver, the blood, the nerves, &c. have all been assigned as the principal seat of it. Where the disease may have its origin we cannot pretend to determine accurately, nor is it a matter of much moment in prosecuting our present practical inquiries, though there appears much reason to conclude that the duodenum becomes early involved in a state of extreme disorder. When the patient is asked if he have any pain or soreness about the viscera, he will probably answer in the negative, while passing the hand rudely over the abdomen. But by gradual and steady pressure over the epigastrium, he will suddenly shrink, and a spot may be found, frequently very circumscribed, which is exquisitely tender. This deep seated part appears evidently to sympathise with the pain in the lumbar region, for inquiry will inform us that this symptom, if present, is augmented by such pressure. The pain then of the back appears to depend on the duodenum, as that of the head does so generally on a disorder of the stomach. The next evidence for supposing the disease to exist in the duodenum, is the great sense of heat and thirst which is referred to this part. When cold water is swallowed, there is a momentary relief—but the thirst returns, even before the fluid has changed materially its temperature. This we ascertain when the stomach is so extremely irritable that it will not suffer distension, and on the ejection of the water, we find it still to be cold. In certain stages of dysentery this kind of association is well known to occur. The patient scarcely swallows a mouthful before a sensation is experienced as if it were rapidly traversing the whole track of the intestines, and a dejection is almost simultaneous. Thus it appears, that an extraordinary degree of sympathy is established between the seat of this intense heat, which we conclude to be the duodenum, or upper portion of the intestines, and the fauces, or œsophagus—for it is suspended only whilst the

cold is in contact with these parts during deglutition. Certainly, if the heat were in the stomach, which it undoubtedly often is, the relief from cold drinks would continue at least until they had been deprived of their heat. The first time we observed this phenomenon was in the paroxysm of an intermittent, during the cold stage. The water appeased the thirst only as it passed down the throat, and when we felt it cold to the hand after coming up, we concluded that the burning sensation was owing to an actual deficiency of animal heat, and that consequently some hot drink might be found a means of relief.

After saying thus much on the pathology of the disease, to which we shall again recur, we continue to explain the *modus operandi* of our remedy, and endeavour to point out the signal benefit attending it. When the emetico-cathartic is received into the stomach, it remains quietly until sickness and a general relaxation of the whole system come on, when vomiting ensues, and the food, with whatever else may be contained in the viscus, is discharged, which will be after a few efforts—because the cardiac orifice dilates sufficiently, and the operation of emesis is more perfectly carried on than when the muscles are thrown into violent and irregular action, by mechanical distension of the stomach, or the application of an irritant, such as we consider the contents of the intestines often prove to be, if regurgitated in sufficient quantity. These ill directed efforts of the stomach may be known by the force with which it acts in propelling its fluids, sometimes throwing them to the distance of several feet. After freeing the stomach, the medicine soon finds its way through the intestines, and acting at the time when this universal relaxation exists, the most complete alvine evacuations follow. By the gentle pressure of the abdominal muscles during vomiting, the contents of the gall bladder, together with those of the *pori* of the liver, biliary ducts, and pancreas, may have been emptied into the intestines, and thus have contributed towards facilitating their depletion. At the same time that our remedy frees the *primæ viæ*, it tends to divert the blood from the viscera, de-

termining it to the surface, and allowing it to be more equally distributed throughout the vascular system. This revulsion is attended with more or less discharge from the emunctories on the surface. Whilst we view emetics in so favourable a light in yellow fever, when judiciously administered, we do not know what can become more destructive when empirically directed. As we have seen them but too often used, the muscles have been so violently convulsed, as to force the stomach against the heart, producing the most alarming commotion in that sensitive organ, and a torrent of highly acrid matter is pressed into the stomach, which thereby becomes every instant more and more excited, until, like some dreadful vortex, it appears to draw in all the fluids of the body—and casting them out, as long as strength remains, undergoes disorganization, or finally sinks into a state of exhaustion, from which it can never recover. When the emetico-cathartic is properly given, all which is above the pylorus is thrown up, and that which is below passes down—and we contend that purgatives alone cannot, with any degree of certainty, produce this thorough cleansing of the bowels. On the contrary, we find them, after the manner of the stomach, irritated to spasmodic action, perhaps contracting, and grasping more firmly the fæcula in the superior portion, while they expel their aqueous contents with great energy. This is ascertained to be the fact, by the dark offensive dejections which follow so immediately the emetico-cathartic, but which are delayed when simply purgatives are given, until that unlocking takes place—which evinces that the powers of life are fast declining, connected with a change of structure, and consequently denoting approaching dissolution.

Resuming the history of the disease: One of the earliest symptoms we hear complained of in yellow fever, is a general soreness of the surface, more especially of the limbs, attended with an aching sensation, as if fixed in the muscles or bones. This symptom, so common to all diseases at their commencement, we were once disposed to explain by the laws of sympathy, supposing it to be associated with dis-

order of the stomach, or of other viscera—but we now think it can be more satisfactorily accounted for, by attributing it to mechanical obstruction. We know that the dermoid system is liable to an infinite variety of secretions, and that in the forming state of fever the exhalants throw out a viscid matter, which, drying on the surface, agglutinates the lamellæ of the epidermis so firmly, as to prevent a further escape of moisture, giving the peculiar dry, harsh feel to the skin. The tubes being thus firmly closed, become distended with their fluids, and until some vent be given, either by way of their natural apertures between the layers of the epidermis, or their contents be removed by absorption, they remain exceedingly tender and painful. To these minutiae it may be thought we have attached an unnecessary degree of importance, but when we consider the nature of the disease under examination, surely no attempt, however feeble, designed to elucidate its character, can be uninteresting.

In selecting the duodenum, or upper part of the small intestines, as the seat of yellow fever, we do not contend that the disease commences there, or invariably falls upon that part. We admit that the disease may have its origin anywhere else, perhaps in the liver or pancreas, and the morbid secretions being received in the canal, give rise to that indescribable pain and deadly sickness, so often observed in the class of diseases termed bilious. This we dwell on, because it forms an important consideration in our rule of practice. That dissections may frequently fail to sustain our position, will form no objection to its validity, as post mortem examinations, though ardently prosecuted, have hitherto cast so little light on yellow fever—which like the gout, flies about the system, seizing as a vulture, and yet, when death ensues, we seek in vain with the knife for the traces of its violence.

Proceeding with the treatment, we next notice the other indications demanding our attention. If after the primæ viæ have been duly cleansed by the means pointed out, we find pain continuing in the head, or back, or the viscera, we

conclude that the vascular system is oppressed, and then the abstraction of blood is called for. Now we are about to take an important step, and we should reflect well before we proceed. In most diseases it may not be very material whether we bleed or not, and this remark may apply to many cases of yellow fever. But in the latter, generally speaking, life may depend on many contingencies, and on none, perhaps, so often as on that of blood-letting. We lay it down as a maxim, that blood cannot with propriety be taken away before the evacuation of the alimentary canal: every symptom demanding the lancet may previously exist, yet when this source of excitement is removed, they vanish, and so immediate a prostration ensues, that we feel satisfied a recovery could not have been looked for had blood been detracted. When, then, the symptoms enumerated are present, after a thorough purgation, blood should be drawn according to the rules so perspicuously laid down in the valuable writings of Dr. Armstrong. If the patient can stand without fatigue, he should be bled in the erect posture—otherwise, he should be seated—and in either situation the blood made to flow in a large stream until syncope, or that state of the pulse and countenance is observed, indicating unequivocally deliquium to be on the point of taking place. He should then be gently replaced in bed, and kept quiet, all attempts to hasten his revival to be forbidden, as it is during this state of partial collapse or relaxation that the engorged vessels empty themselves, and the most decided advantage is gained by the practice. The quantum of blood necessary to be thus drawn we wholly disregard. It may amount to ten ounces, or to fifty ounces—for we draw the vital fluid in vain, unless positive proof be obtained, that the vascular system, being relieved of its load, has recovered its elasticity, and that a powerful impression is thereby made on the disease.

In citing Dr. Armstrong, we do not pretend to determine whether he be justly entitled to the claim of any originality in his opinions or practice. The precepts, however, which we find in his writings, are the very best we have met

with on the subject of blood-letting. The following transcript from Sydenham, will show the practice of suddenly drawing off blood was not unknown in his day. " Amongst the other calamities of the civil war that severely afflicted this nation, the plague also raged in several places, and was brought by accident from another place to Dunbar Castle, in Somersetshire, where some of the soldiers dying suddenly, with an eruption of spots, it likewise seized several others. It happened at that time that a surgeon, who had travelled much in foreign parts, was in the service there, and applied to the governor for leave to assist his fellow-soldiers who were afflicted with this dreadful disease, in the best manner he was able—which being granted, he took away so large a quantity of blood from every one at the beginning of the disease, and before any swelling was perceived, that they were ready to faint and drop down: for he bled them all standing, and in the open air, and had no vessels to measure the blood, which falling on the ground, the quantity each person lost could not of course be known. The operation being over, he ordered them to lie in their tents—and though he gave no kind of remedy after bleeding, yet of the numbers who were thus treated not a single person died, which is surprising." To this Dr. Rush subjoins the following note: " The quickest effect is produced from bleeding in a standing posture of the body. The loss of twelve ounces of blood will induce fainting in this posture, sooner than three times that quantity when a patient lies in bed. It should be resorted to when we wish to produce a sudden and general change in the actions of the system." Hundreds of such remarks may be found in writers for the last two or three centuries.

Next our attention is turned to the skin, and having by proper ablution dissolved and removed the glutinous matter with which it is incrustated, we would propose a remedy with no small degree of confidence, although we possess no experience of its efficacy in yellow fever. We have reference to oil. It would be useless in us to attempt furnishing a laboured detail of all the facts which might be ad-

duced, to prove the importance of the operations carried on by the skin as connected with yellow fever, particularly those relating to temperature. The associations between the surface and viscera have formed the ground-work, on which some of the most ingenious theories have been erected. The publication of Dr. Johnson on Tropical Climates, a work of no ordinary merit, has presented the world with some interesting hypotheses founded on this connexion—and were we to indulge in speculation, we must confess we should endeavour to build on this basis. But waiving all unprofitable discussion, we find, as we before stated, the mouths of the capillaries rendered impervious by a morbid condition of the secretions. After washing off this viscid matter, it becomes a desideratum to prevent its re-exsiccation. Were the patient to remain in a bath, or water to be continually applied to the surface, the end might be answered: but as neither mode can be adopted, we recommend the application of olive, or some other oil, which will insinuate itself into the interstices of, and incorporate itself with the cuticle, preserve it in a soft pliable condition, and thus prevent the gluing down of the epidermis.

At first it might be thought oil would prevent the escape of perspiration, by shutting up the mouths of the cuticular canals: that such however is not the fact, will appear by the following experiment: A person suffered excruciating pain from extensive inflammation of the thigh, and a cold saturnine lotion was used with perfect relief. This mixture having been consumed during the night, and the pain returning with its previous violence, he had recourse to cold water, which answered equally well. Being thus satisfied no credit was due to the lead, he was ordered to continue the water. At the next visit he assured us that warm water was just as effectual in relieving him. Not feeling disposed to commit ourselves by further proof of the fallibility of our opinions, we instituted some humble inquiries, which conducted us to the conclusion, that the inflamed skin was relieved by restoring the insensible perspiration, or by softening the

strata of the skin already so far detached as to be out of the pale of vitality, constituting, strictly speaking, the epidermis. When the water was removed by evaporation, the heat and pain became intense: by inverting a cold glass cup a moisture was perceptible. By rubbing on olive oil relief was again obtained, and when the glass was turned down a dew soon condensed on the bottom of the vessel. The truth of this experiment has been since fully confirmed. The most striking property in some of the oils is the facility with which they change the disposition of their particles, in consequence of their feeble cohesion. They in fact appear devoid of tenacity, observing simply the laws of gravitation and capillary attraction. They do not unite with water, because the latter fluid has so considerable an integrant attraction as to deny them admission between its globules. When filtering paper is saturated with oil, and water is effused, it soon finds its way through the unresisting medium, and percolation goes on uninterruptedly: this is identically what takes place when the exhalants have conveyed their fluid to the sinuosities of the epidermis—if the least force propel, the passive oil is displaced, and transudation ensues. In health the sebaceous glands of the cutaneous system continually furnish an oleaginous matter, producing that condition of the surface its functions require, and which when absent or deficient in quantity, we would remedy by artificial means.

We have been assured from respectable authorities that olive oil, externally applied, is fully competent to subdue the frightful plague of the Nile, and this assertion we surely are not prepared to deny, when we take into view the chronic form of the disease with the adynamic state of the system so often marking the plague, which may not require more active depletion.* It is well known the African can better resist the causes of acute diseases in tropical climates than the white man: he emits an extraordinary quan-

* When there is a great torpor of the surface, Dr. Porlee has lately advised alcohol to be united with olive oil, which may be much preferable in such cases to oil alone.

tity of perspiration, and in time a proportionate degree of oil is found on the surface. No custom prevails more universally among those barbarous people, in whom nature does not amply supply this defence against fevers in unhealthful countries, than the use of unctuous substances. To change the actions of the skin when viscid matter is secreted, and too small a discharge is supplied by the sebaceous glands to preserve apertures for the exit of perspiration, a remedy has been offered to the public in the "sulphur fumigations," which by suddenly rousing the torpid exhalants, and removing the obstruction from their mouths, may prove an important adjuvant in treating an infinite variety of diseases.

In laying down our rules of practice the pulse has not been alluded to. In the outset of yellow fever, though our hands are applied often to the wrist, yet we can learn but little from its pulsations. We concur with those who say, when the pulse is weak or strong, slow or frequent, regular or irregular, perceptible or imperceptible, bleed—plainly amounting to an acknowledgment that other criteria govern them. Thus far, however, we go with confidence, when the pulse continues steadily tense after the evacuations we have premised, though there may be no pain, still we would take away blood to the extent already proposed.

These steps having been taken to meet the primary or oppressed stage, we pursue the practice by further general directions for what may be called secondary symptoms. Should not the colluvies of the bowels be carried off effectually, of which we determine by the appearance of the dejections, small portions of calomel may be ordered at short intervals until the cleansing be complete. If the intestines be so sluggish as to require something more stimulating, the sulphate of magnesia alone, or united with magnesia, or senna, may be given in small doses alternately with the sub-muriate of mercury.

Of calomel as a remedy in fever, so much has been said, that we feel reluctant to offer a single comment. Yet as we would not encourage the introduction of any remedy em-

pirically, we will endeavour to express our ideas of its *modus operandi* so far as may concern the subject of our observations. No article in the whole range of the *materia medica* appears possessed of so many peculiar and valuable properties as calomel, more especially in bilious disorders, or those complaints in which the chylopoietic viscera are immediately concerned. It not unfrequently appears to exert counter-stimulant or sedative power,* removing spasm, and enabling the vessels to relieve themselves, according to the same rationale by which opium brings about a solution of stricture, and thereby facilitates the excretions. This sedative property manifests itself as unequivocally, on some occasions, in calomel, as it does in the oxydes of lead, an example of which is offered by the following case. A person during a sickly autumn experienced some of the symptoms, such as headache, furred tongue, feverishness, &c. the forerunners of a bilious attack. At night he took four grains of calomel, which commenced a gentle operation in the morning. When this was going on steadily, he received four grains more, and instantly the purging ceased. After the lapse of three hours, a third dose, similar to the preceding, was taken. Now the remarkable property attributable to mercury, that of destroying or suspending the susceptibility of the intestines to the action of purgatives, discovered itself. For several days unremitting attempts to procure an alvine evacuation were continued to no purpose. At the end of that period a small discharge took place, and very gradually the natural functions were re-established. This effect of calomel we must very often have observed more or less in those disorders in which the actions are easily controlled: diseases of higher action may be more refractory, and this influence may be wholly lost in them, or not be sufficient in degree to become evident. In attempting to lay down a few practical rules, it might be considered unnecessary to entangle ourselves in the dis-

* Some very ingenious observations relating to this subject, may be found in a paper by Dr. Bell, in one of the numbers of this Journal, in an exposition of the new Italian doctrine of counter-stimulants.

cussion of the question whether there be a sedative, nor do we wish to engage in a controversy touching any subject abstracted from the avowed object of our inquiries: but what shall regulate the practice, unless some definite ideas exist of the nature of the medicines employed? Either nosology and specifics must be restored to us, or we must analyze diseases, and be equally minute and indefatigable in investigating the properties of our remedies. When calomel is introduced, its first tendency is to suspend action. The solids may submit more or less according to circumstances, and when it is removed, or the parts will no longer be restrained by it in their operations, action returns in a greater or less degree. However simple this hypothesis may be viewed, yet it embraces the substance of the arguments advanced by those who contend for the existence of sedatives, and to this remnant of a corps now insignificant in number, but a few years ago predominant, we should feel strongly inclined to enlist ourselves, were we not decidedly opposed to parties or sects in medicine: though we do admit, that such a subtle definition of the term sedative may be given, as to preclude most effectually this and every other substance in nature. Comparing mercury with the narcotics, they appear to differ in this—the former, as we have said, acts as a counter-stimulant or sedative until absorbed, when it becomes an excitant: the contrary of this holds good in regard to the latter—they first irritate, and subsequently, as they are absorbed, become sedative—while, if neither be taken up, and act at all on the moving fibre, the one is a sedative, the other is a stimulant.

Viewing mercury as a sedative, it admits of as extensive application in diseases as its most zealous friends could desire. In the ardent bilious fevers, for instance, it tranquilizes the excessive action of the chylopoietic viscera, in which the disease is supposed to be primarily seated, tending to bring about that state of relaxation which we thought requisite to admit of due depletion, and in proportion as this state is increased, by so much is the disease actually subdued. In the cachexiæ, or chronic affections of the digestive

organs, when universal atony and depravity appear to prevail, our theory of the *modus operandi* of mercury offers no objection to its administration: on the contrary, it here meets with those feeble states of morbid action which it will, with the greatest certainty, suspend or subdue—and when duly aided by proper auxiliaries, becomes an invaluable remedy. Under these circumstances, it relaxes the excretories, and enables them to free themselves at once of their stagnant and corrupt humours, effecting as salutary a change as we observed in inflamed ulcers, where emollients have soothed the vessels to the point of free suppuration. That there is over excitement in this class of diseases somewhere, we see clearly pointed out by the slow but incessantly consuming fever, which invariably accompanies them, the source of which is readily traced to the chylopoietic viscera. After the emunctories have been unloaded, the mercury is then gradually taken up, exciting gently, and producing that deobstruent and alterant effect of such infinite importance in the depraved condition of the digestive apparatus, as well as in all chronic disorders of the constitution, to most of which it will sooner or later extend its influence. If the functions of the absorbents be maintained, constituting the susceptibility of the constitution to take on the mercurial action, and the remedy be persisted in, the system becomes more and more acted upon, until the unequivocal symptoms of the mercurial disease present themselves. But there do appear exceptions, in which partial absorption of the medicine has taken place, and yet the system does not appear disposed to receive more, or to assume the specific action. In such cases the symptoms become exceedingly irregular, denoting much derangement in the vital and natural functions, and such as will baffle the skill of the best practitioner. That this state is the effect of the partial absorption of the medicine, we infer from its being removed when an evident salivation comes on, therein much resembling the phenomena observed in some of the exanthemata on the appearance of the eruption.

Hitherto mercury has been considered as a sedative or

antispasmodic, and by consequence as an evacuant. We now view this Proteus wholly metamorphosed. When mercury has been continued to a certain extent it becomes universally stimulant. This exciting quality is not merely a reaction from accumulated sensorial power, but the effect of its being carried into the circulation. When the absorbents are no longer interrupted in their functions by disease, and are not too much enfeebled, they give a proof of their activity by taking up the mercury and conveying it through the system, creating a salivation, or what has been denominated the mercurial action, or constitutional effect of the medicine. In this dilemma, the system struggles to rid itself of the mercury by every outlet, and these efforts constitute a series of symptoms, liable to endless modifications. Sometimes they are mild, and soon pass away with the secretions so abundantly poured out, leaving the patient in perfect health. But in too many instances, we notice that inordinate degree of excitement, which every one acquainted with the animal economy must know, cannot continue long, without falling on some exposed organ with the most destructive consequences. Much, however, is left to the power of medicine to avert these evils, by favouring the secretions during this tumultuous action of the system, and by giving tone to the organs liable to suffer from indirect debility, when the stimulus of the mercury is about to be withdrawn. In yellow fever as well as in many other diseases, we feel at a loss to determine whether a salivation should be courted or avoided, as the issue will be decided before this effect is induced, without ascertaining whether it be salutary or not, and therefore give the medicine without reference to this contingent. But when it has occurred, we are ever mindful of the sequelæ, which often undermine irremediably the most vigorous constitutions. During this mercurial state, a shock given to the system, which, under any other circumstances, would be harmless, may here prove fatal. The imprudent exposure to cold, strong stimuli, &c. furnish examples confirming the truth of the remark. One of the immediate and striking evils of mercury is occasionally

experienced, when simply a glass of cold water succeeds its use. The stomach or bowels being reduced to a state of extreme atony from the disease and the medicine, cannot bear further the sedative effect of the cold. The effects are similar to those produced in the habitual inebriate, who, when exhausted by fatigue in the heat of summer, suddenly swallows a large portion of cold water. In the latter case, sudden death takes place, because the vital functions are in a more debilitated state than in the former—but in neither may the natural functions ever revive.

Viewing the whole catalogue of diseases, certain stages of nearly every one will be found imperiously demanding mercury, though at the same time, there are periods in every disease when it evinces the most deleterious properties. When given in over doses, or too frequently repeated, like the operation of lead, it weakens the natural functions to such a degree, that re-action cannot take place, and those identical visceral obstructions ensue, for which it is subsequently so perseveringly administered. If there be a remedy requiring nice discrimination in its employment, it certainly is mercury, and yet we see this powerful article administered with as little ceremony, by those incapable of appreciating its properties, as the most inert herb, though every dose, however minute, may break down the soundest constitution.

We find mercury alternately lauded as a panacea or condemned as a poison, and this we predict will ever be the fate of its reputation among the ignorant and unreflecting. It would be a difficult question to decide, whether the people at large of this country, into whose hands it has so generally fallen, would be benefited by being wholly deprived of mercury. In violent diseases we witness daily many lives rescued from immediate death, by this popular remedy; but at the same time, we meet with innumerable instances of those with shattered constitutions, whose atrophic limbs and sallow complexions are hurried to the grave, with all the marks of early decay and premature old age—"a melancholy group," the victims of mercury.

An opinion prevails, that mercury, unrestricted in quantity, may be taken at all times, under all circumstances, regardless of contradictions, with the most perfect safety : but certainly this idea cannot be entertained by physicians of the least intelligence, or by the reflecting part of the community. A very few grains of this medicine, judiciously administered, may be found fully sufficient to subdue the most destructive maladies : the fraction of a grain will sometimes manifest as much, and as immediate, febrifuge power as could be found in all the extended catalogue of the *materia medica* beside : an equally minute portion is, at times, sufficient to create as great a state of constitutional excitement as any larger quantity : whilst a half ounce dose may operate as mildly as an equal weight of castor oil. Who then, reasoning from such facts alone, without the aid of experience, which daily furnishes proofs of the evils from an abuse of this medicine, will say that the greatest caution is not necessary in its exhibition : reason must tell them, that an agent so active must be productive of good or evil in a ratio proportioned to its power.

Enough has been said of mercury to direct the thoughts of the inexperienced to sober reflection on its *modus operandi*—and to guard them against falling into the fashion of the day, which degrades medicine from the rank of a liberal science, to the mere trade of vending mercury. We do not feel assured that our language is sufficiently perspicuous to express the ideas we wish to convey on this subject, nor that our theories, if understood, will be approved of—but evidence is offered of our sincere desire to rescue so invaluable a remedy from the hands of the empiric.

Again we return to the practice in yellow fever, to which we shall add a few more brief remarks. In directing the treatment, we have supposed the patient to be in the oppressed or incipient stage of the disease. Beyond this period we advance with increasing diffidence, because in proportion as remedies are delayed, must our confidence in their efficacy be diminished, whilst a corresponding degree of discernment becomes requisite in their application. First

we resume the subject of emetics, which were so strenuously advocated in the beginning of yellow fever. How late in the disease they can be prescribed with advantage or safety, we know of no certain criteria for determining. The following case, however, may serve to show that the emetico-cathartic may be used with propriety after spontaneous vomiting has taken place. A person of temperate habits, and good constitution, was attacked in the afternoon with an incessant vomiting, together with all the usual symptoms of yellow fever in a malignant form. In the morning he took a dose of calomel and jalap, which had not operated when we visited him at noon. We found him with a hot, dry skin, pulse somewhat oppressed—the tongue covered in the centre with a thin white film—eyes injected, dull, and floating in tears—respiration hurried—the general appearance lethargic, and in fine, all the symptoms indicated the most violent grade of the disease. He was ordered an emetico-cathartic consisting of ipecacuanha, emetic tartar, and calomel, the combination to which we usually give the preference. After the lapse of half an hour, without appearing to make any considerable effort, he threw up a large fragment of food imbedded in some tenacious matter: in a few minutes more a similar ejection was observed. The vomiting then ceased, and he lay quiet for an hour, apparently much relieved, when an evacuation per anum took place, nearly as dark as ink, astonishingly large in quantity, and excessively fetid. Like the discharges from the stomach, this evacuation also was unattended with any effort, passing out as if acted on by the power of gravity alone. Now the condition of the patient was surprisingly changed, the breathing became slow and easy, the eyes lost much of their dull inflamed appearance, the heat and dryness of the surface were diminished, and the headach and pain of the loins were no longer complained of. Though previously indifferent to surrounding objects, he now surveyed the apartment with an inquisitive countenance, as one just awoke from profound sleep. By continuing the cathartic a few hours longer, and sponging the surface with tepid water, the im-

mediate cause of the symptoms, the ingesta and offensive deposit, constituting the pabulum of the fever, were removed, and the disease thus cut short or perished.

In this instance we at first doubted the propriety of ordering an emetic, fearful of producing that reflux from below, so much to be dreaded: but taking into consideration the circumstance, that no alvine evacuation had yet taken place, and the necessity of an immediate and free evacuation of the intestines, we concluded this could not be so certainly effected in time, if at all, without the aid of the emetic. Since this case presented itself we have set a still higher value on the emetico-cathartic, and would venture to give it, under similar circumstances, at a much later period, as we have subsequently practised with the best success. The undigested portions of food remaining in the stomach, after vomiting throughout the night, proved that the dilatation of the cardia was not previously sufficient to allow them to pass, while the water the patient swallowed was immediately spirted out to a considerable distance. But it must be remembered, the patient's entreaties for something to assuage his thirst were resisted, or perhaps the distension from a single glass of water might have induced that state of irritability which could never have been quieted. It is not the ungovernable action of the stomach alone which should prevent our giving fluids with emetics, but a degree of debility in the organ is thereby induced, for which we can advance no satisfactory rationale. In some instances, where the stomach has been washed out for a length of time with warm water, in the case of poisons having been received, the organ has become so debilitated, that death has taken place from this cause, after the poison has been drawn out.* Doubtless, from a knowledge of similar facts, the dry vomit was first employed, which proves so highly beneficial in some chronic disorders, by giving tone to the enfeebled stomach.

We would never propose the repetition of an emetic in

* Cases of this kind have been related in the lectures of Dr. Parish.

yellow fever, provided emesis have been once fairly induced, as we consider it injurious to exercise the stomach further than is necessary to answer the indication, of which we have already spoken, as claiming our first attention. Nor would we hazard an emetic even for this purpose in some later periods of the disease, when we may suppose the ingesta to have been dissolved and passed down, and such relaxation to have taken place, as to admit of the expulsion of the contents of the digestive viscera by cathartics. Our apprehensions from the emetic process are, although we may use the dry emetico-cathartic, the regurgitation of acrid matter, which has for the most part become pungent in proportion to the duration of its confinement—and also a determination of blood to the stomach or its neighbourhood, which we know is so apt to be deposited there just before the appearance of black vomit: now, unless some important end is to be answered, such as has been pointed out more than once, we do not conceive it prudent to run the risk of creating so much mischief. No one, we think, will deny the acrimony of the fluids in disease: they show this pungency by excoriating the lower intestines and verge, when they descend—and when they are thrown up, we can discover similar effects as they are forced through the stomach, cardia, œsophagus, and fauces, giving rise to that erysipelatous and eroded appearance, which have been seized on as the idiopathicus, or essence of the disease. Where vomiting has taken place, the upper orifice of the stomach will be more acted upon than the pyloric, being less accustomed to come in contact with bile, or other secretions from below. But sometimes there may be a regurgitation of the matter, unattended by vomiting, in which event, marks of the irritant may be found at that sphincter of the stomach only. The acrimony of bile is further attested by its having excoriated the fingers of dissectors. This corrosive property of the bile and other secretions, however, we need not expect to meet with often, except in malignant diseases, as in our ordinary bilious complaints we see persons vomiting for days or weeks, with as

little danger as need be apprehended from nausea marina, or the irritation of the fœtus.

We next pass to cathartics. Here our rules may be sufficiently concise. We would, in the first instance, continue the cathartics until all the fecula, or corrupted secretions, come off, which we may convince ourselves of by examining the evacuations, and then suspend them until a re-accumulation is likely again to aggravate the disease.

Equally laconic are our precepts on the subject of blood-letting. After blood has been drawn in the commencement of the treatment, as already advised, if pain be seated in any of the viscera, or head, or along the spinal cord, we should again resort to general bleeding, provided there is sufficient tension of the pulse to warrant this mode of depletion. But when the arterial action is not preternaturally great, we should trust to topical bleeding, which has the happiest effect in relieving local inflammation or congestion. This mode, indeed, of taking away blood will often answer every good purpose, even when the pulse denotes a considerable degree of general inflammation, and rarely, it may be added, will a severe case of yellow fever offer, in which this method of blood-letting may not be practiced with the most signal advantage. The writings of Dr. Armstrong on this head, are so able and satisfactory, that we have only to add our feeble testimony in confirmation of the truth of his doctrines. But before we dismiss this part of our subject, we would wish to point out what we conceive to be a capital error, committed by those who have advocated bleeding as the first in the routine of remedies, on account of its rendering more certain the operation of cathartics. It should, we conceive, be deferred for a while after the exhibition of the cathartic, which then would be ready to act before the state of relaxation is recovered from. Now it must be recollected, we have protested against bleeding before we are convinced of its necessity, which can only be known when certain causes of pain, increased action in the pulse, &c. have been obviated. The ill effects of permitting excessive action to continue in the vascular system, we con-

ceive, will not be experienced, when the emetico-cathartic is previously employed, as that compound diminishes arterial action, at least until it operate, by reason of its antispasmodic or relaxing virtue. We conclude the subject of blood-letting with a caution against resorting to this remedy, on account of an inflamed appearance of the eyes in yellow fever. This symptom, so often deceptive, instead of denoting a sthenic diathesis, shows in fact, nothing more than want of tone in the extreme vessels, such as often warns us of the approach of hemorrhage. We have known venesection proposed to meet this symptom, when it was evident, that the inner or outer part of the conjunctiva was injected, as the internal or external canthus happened to be next the pillow—the blood simply settling down from gravity.

By the proposed plan for preserving moisture, the heat may be sufficiently lessened, provided there be a free accession of fresh air, to answer the indications with regard to temperature in many instances, though not universally. How far the cold effusion might be beneficially employed in yellow fever, or other acute diseases, we are not prepared to answer, as our experience on this subject is limited to a few trials, awkwardly conducted, without much acquaintance with the pathology of the diseases for which they were directed. These trials, or experiments, at the time, gave rise to strong prejudices against the remedy, but we cannot suppose that all those who have borne such ample and positive testimony in favour of cold effusion, could have been deceived, and we have no doubt, that when the rationale is well understood, it will be classed among the most esteemed remedies. Changing instantly the action of the whole surface by the sudden shock of cold water, must have a serious influence in the issue of acute diseases, and therefore we would give a warning here, which will apply to all active remedies—that unless we are supported by fixed and undeniable principles, we had better abandon all pretension towards aiding our patients by the employment of powerful agents.

To prevent the suspicion of suffering our patients to

famish from thirst, we would remark, that when the stomach can bear the distension, and the fluids are absorbed, or descend, the patient may be indulged, as we would in gastritis, where it is well known, that often not more than a teaspoonful of fluid can be swallowed at a time, without injury, during certain stages of that affection.

We do not know that any advantage might result from continuing the routine of practice, nor have we the inclination or ability to go further, where the varying symptoms will require nearly the whole list of medicines to be brought to our aid. We rest firmly persuaded of the truth, that when the great indications, such as we have endeavoured to point out, and such as cannot be mistaken, are properly met, health will most generally prevail over disease, although we may afterwards blunder at every step, although every subsequent prescription may be justly classed among the ledentia: yet we must endeavour to console ourselves with the belief, that we preserve many of those submitted to our charge, aware that "the scales in which life and death are placed, are sometimes so exactly balanced, that a single grain may cause either to preponderate," and not having the necessary discernment to throw this grain on the right side of the beam, we cannot save all.

We found the primæ viæ overloaded with the ingesta and excretions—the liver with its appendages clogged from accumulated matter—the vascular system in a state of suffocation—the exhalants obstructed—and the sensorium commune rendered lethargic, from sympathy or undue pressure: these symptoms, marking the beginning or oppressed stage of yellow fever, to which we invited the attention of young practitioners, we hope we have treated according to the most approved *methodica medicina*. Let them be met with boldness and determination, and we feel fully persuaded that there will be great cause to exult in the efficacy of medicine over this most formidable disease, which is cut short in its career, and happily terminates, like the ephemera, in a few hours. Contemplating a patient on whom the yellow fever has fastenèd, we must acknowledge, that here unas-

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sisted nature is impotent. However much we may admire the wisdom of the animal economy in other exigencies, here the recourses of the vis medicatrix are paralyzed—shake off this incubus, and she may awaken with all her recuperative energies. At the same time, it must be confessed, that in many instances, all our efforts will prove unavailing. When the appearances might point out to us only some slight disorder of their function, organs essential to life may have suffered lesion or change of structure—already the silver cord may be loosed, and the golden bowl be broken. Let then our prognosis be guarded. We must not be surprised to meet with a storm against which no human wisdom can provide, and a momentary calm often precedes its overwhelming fury.

There is a leading propensity with many to discover or invent some specific, or unicum remedium, which may prove a sovereign antidote for diseases: it is scarcely necessary to notice how idle it is to indulge in such vain expectations. Let us examine a few attempts of this kind in yellow fever. Will blood-letting, alone, immediately remove the contents the primæ viæ, when they are pent up and poisonous? Can emetics and cathartics, alone, immediately relieve the vascular system, when it is unable to carry on the vital functions from excess of blood? Can mercury, alone, immediately force the stomach to dissolve its food, so as to pass the pylorus, remove the excretions, employ the bloodvessels, open the pores on the surface, and in an instant penetrate the absorbents? What are we to expect from epsom salt, opium, bark, sugar of lead, turpentine, or charcoal, when all the emunctories of the body require to be opened? Some practitioners, in combating disease, from indolence or other causes, are ever anxious to abandon all regular tactics, which the collected wisdom of ages has sanctioned as the surest mode of subduing their enemy, and resorting to some stratagem, or deceit, which may take him by surprise. In a moment of enthusiasm they imagine they have succeeded, but failing afterwards when the experiment is impartially tested by others, they suppose the

disease, like some instinctive animal, has become more wary and not to be ensnared by the same cure again. To say that certain remedies are efficacious in one country, or with one set of people, or on one day, and not on others, is not the language of philosophy—for whenever the indications call for certain remedies, they must answer, or the laws of nature cease to be immutable.

To prevent disappointment among the over sanguine, who might suppose that some of the many articles recommended for black vomit might be found successful, we will add a word explanatory of this symptom, to know how far they may be relied on. We find no opinion of the present day so much at variance with our own views, as that which considers the appearance of *melæna* as a secretion, instead of a hæmorrhagy. The morbid blood being accumulated in the minute vessels of the stomach, liver, intestines, &c. from a deficiency of the *vis a tergo*, or *vis vitæ*, and remaining there in a state of stagnation until its vitality is altogether lost, is suffered to escape, when a relaxation or lesion of the vessels succeed, as the cystic bile exudes after the death of the sac. It is difficult to conceive that the stomach, or any other viscus, could elaborate such a prodigious quantity, when in part, if not wholly, deprived of the property of living matter, as we know the stomach and intestines usually are when hæmatemesis occurs. One proof, perhaps, that the stomach has long been in a passive state, nearly allied to death, is the circumstance, that animalculæ are detected in the black vomit, the ova of which are taken with the ordinary ingesta, but which cannot be brought into active life provided its functions be continued sufficiently to prevent those chemical changes common to dead matter from taking place. It would be as near the truth to consider the hæmorrhagy in scurvy as a secretion: for if dissections are to have their weight, the latter will present the same pallid, flaccid condition of the vessels as noticed in yellow fever. We cannot imagine that the system, when evidently failing in all its functions, and rapidly dissolving into one chaotic mass, should at that moment engage with

so much energy in eliminating the matter of black vomit. Sometimes the appearance of melæna, like a jaundice, portends no material derangement in the animal machinery. But often it evinces the death of the blood, wherever it becomes languid in circulating, as in the extreme vessels, and is as fatal as gangrene of the parietes of the abdomen.

Concerning the origin or cause of yellow fever we do not mean to express an opinion, further than to state our impression that all the speculations on this subject have hitherto proved exceedingly unsatisfactory when critically examined. Nor are we disposed to do more in regard to the controversy whether the disease be contagious.* Conceded that it is contagious, or infectious, physicians should remember that they are bound by an implied compact with the community, as well as by all the ties of humanity, like faithful and well disciplined soldiers, to stand firmly at their posts in the hour of danger.

To conclude. It will be perceived that we are governed by those liberal principles which should ever direct our steps. Long since admonished of the danger, we follow not blindly the system of any one man or set of men, but respect all, and collate from all, reserving to ourselves the liberty to adopt, reject, or modify, the doctrines of others as our reason and judgment may determine. We have endeavoured as far as practicable to reconcile conflicting opinions, and to avoid extremes—aware of the truth of the aphorism that, “While generalities are barren, and the multiplicity of single facts presents nothing but confusion, the middle principles alone are solid, orderly, and fruitful.”—*Lord Bacon’s Novum Organum.*

* Some sensible and appropriate remarks were published last fall on this subject, by the surgeon of the national ship Hornet, then at Norfolk.

ART. X. *On the Doctrine of Sympathy.*

By J. D. GODMAN, M. D.

IN the medical profession, it is very desirable to obtain a doctrine, or body of general rules, capable of directing us in our researches, and assisting us in practice, though an entire devotion to a theory of limited application, deduced from a few particulars, or an exclusive attention to one set of operations in the animal economy, is repugnant to common sense, and incompatible with sound philosophy. It is not less absurd to adduce a great number of causes for the production of any result, when a single efficient may be obtained—as it is very prejudicial to the interests of truth and science, to waste time on secondary actions, which might be advantageously bestowed in the investigation of primary agents. Our intention in forming a theory should be, to embody such principles as are of most universal application, and may be most serviceable in the direction of our professional conduct: hence a theory which is based on the firmest aggregation of facts, is collaterally sustained by the greatest number of analogies, while it gives us a better clue to discover the laws which govern our systems in health and disease, we esteem to be most worthy of our respect, because it is the most useful.

In viewing the relations existing between the different parts of the system, we are early forced to remark the dependence of the different textures and functions on each other. Although some are of greater comparative importance, yet the presence and correct action of all the parts, individually and collectively, is essential to the continuance and perfect state of the whole, which we find clearly proved, when accidents, by disturbing a particular function or structure, induce a general disarray, or even destruction of the entire fabric.

To maintain this dependence, we find in the animal economy a principle of union, or law of consent, which enables

the whole to feel with a part, and preserves a continuity of action between the centre and extremities of the system. To this we give the name of SYMPATHY, by which we express the *existence*, without referring to the *nature* or *mode* of its operation. We know not what constitutes the *essence* of life, though we are satisfied that it is most peculiarly resident in the nervous system, and by the branches of this system that the influence of impressions is conveyed from one part to another, producing those interesting and complicated results, which are daily witnessed in health, and so extensively modify the appearances, in a state of disease.

Throughout our structure we find a provision for the free communication of sensations and actions which cannot be mistaken. The organs of sense are endowed with nerves to receive and transmit peculiar impressions, and they are supplied, in addition, with other nerves destined to convey the influence of the will, or to associate them with surrounding parts. These nerves communicate freely by filaments and by the formation of ganglia, through which communications the *sympathies* of parts are preserved. If we except the nerves devoted to certain senses, we cannot point out any striking difference between those nerves which arise in the head, and those which come from the spine—nor can we account for the difference of function in those nerves of sensation from their differences of texture. The retina formed by the optic nerve, the nerve belonging to the ear, and the olfactory nerve, approach each other so closely in this respect, as to baffle our attempts—while the nerve of taste, and the branch supplying the muscles of the tongue, are to all appearance the same in structure. There is also a close analogy between the nerves of touch and those of taste, although the former are merely the terminations of nerves of every description, and the latter are branches of a peculiar trunk.

There are two nerves, which seem particularly designed for the extension of the influence of *sympathy*, or to preserve that unity of sensibility and action necessary to the existence of the individual. These are the fifth pair, or

nervus trigeminus, and the continuation of the sixth pair, or *nervus sympatheticus*.

The distribution of the fifth pair is very singular, and highly interesting, yet we cannot, in an essay of this kind, indulge in a full detail, which is the less to be regretted, as every one can refer to the descriptions of the anatomists. Yet a general mention of the peculiarities of its course will be sufficient to awaken that attention which is necessary to the understanding of our arguments.

The fifth pair of nerves are the largest of the brain, and they arise by an anterior small and a posterior large portion from the tuber annulare, where the crura cerebelli are joined to the tuber. Over the pars petrosa of the temporal bone it forms a plexus, composed of upwards of fifty fasciculi, which unite to constitute the Gasserian ganglion. From this ganglion three large branches arise: the first is the *ophthalmic*, the second the *superior*, and the third the *inferior maxillary* nerves.

The first branch of the fifth pair is connected, by nervous matter, to the *fourth pair*, previous to its entrance by the foramen lacerum anterius into the orbit. While in the orbit, it sends a branch, which unites with the *third pair* to form the *lenticular ganglion*, that supplies the iris and choroïdes; gives off others to re-enter the cavity of the cranium by the foramen orbitarium internum anterius, pass over the cribriform plate, and through one of the anterior holes into the nose, to be distributed on the membrane of the nose, in company with the olfactory nerve. The lachrymal gland and sac also derive nerves from the *ophthalmic* branch of the fifth pair, which finally emerges from the foramen supra orbitarium, and is distributed about the superciliary ridge and anterior part of the scalp.

The superior maxillary nerve goes out by the foramen rotundum of the sphenoid bone, and separates into many branches. The *spheno-palatine* or lateral nasal sends the *vidian* or reflected branch through the pterygoid foramen to enter the foramen innominatum of the pars petrosa, to join the *portio dura* of the seventh pair, and a branch which

joins the sympathetic in the *canalis caroticus*. Afterwards the lateral nasal branch enters the sphenopalatine hole and is distributed on the under and back part of the septum—opposite side of the nostril, on the membrane of the sphenoidal sinus and Eustachian tube, terminating at length by a branch which goes along the septum and through the foramen incisivum to the roof of the mouth. The *palatamaxillary* branch sends twigs to the velum palati, roof of the mouth, palate plate of the superior maxillary bone, and small branches around the back of the upper jaw, which terminate in the cheek. Some other small filaments run down into the back part of the superior maxillary bone and supply its substance, the large *dentes molares* and the lining membrane of the cave of the face.

After giving off all these branches, the second part of the fifth pair enters the canal under the orbit and becomes the infra-orbital nerve, which gives off filaments passing through minute holes to the antrum, substance of the bone, small molares, canini and incisores, and sometimes a twig to the lining membrane of the orbit. The trunk afterwards passes through the foramen infra-orbitarium, divides into several large branches, which are dispersed on the cheek, under eyelid, upper lip and wing of the nose.

The third part of the fifth pair is that which goes out by the foramen ovale of the sphenoid bone to supply the parts belonging to the under jaw and the muscles between it and the *os hyoides*. It sends branches to the temporal, masseter, buccinator and pterygoid muscles, to the forepart of the ear and side of the head, and to the cheek. This nerve also furnishes a branch of considerable size, called the *lingual or gustatory*, which in its passage between the pterygoid muscles, sends from its under side a ganglion which supplies the inferior maxillary gland. Branches are also sent by the lingual nerve to the sublingual gland and muscles of the tongue. This nerve terminates on the upper and forepart of the tongue, more especially on its point, by many branches which belong to the papillæ, and hence it is esteemed to be the chief nerve of gustation.

The trunk of the inferior maxillary nerve enters the foramen posterius of the lower jaw, runs under the alveoli, supplying the teeth and substance of the bone, and comes out somewhat diminished in size by the anterior maxillary foramen to be dispersed on the chin and under lip.

Thus we find the fifth pair connected with the third, fourth, sixth, seventh, eighth and ninth pairs; going to the eyes, the nose, the ears, the face, teeth, palate and tongue; freely communicating throughout its course with the other nerves, and justly meriting the title of the *sympathetic nerve of the head*.

By recollecting the peculiarities of this distribution, how many sympathies are rendered intelligible which would otherwise appear obscure! We can understand at once why inflammation of the tonsils gives great pain in the ear, why inflammation of the eye is produced by caries or extraction of the teeth, or how the tooth ache is extended throughout the jaw and the ear. When we remember that the ophthalmic of this fifth pair is concerned in supplying the iris with its nerves, we can readily comprehend how the eye may become weak when an injury is done to the supra-orbital nerve, as well as how the light which falls on the upper part of the face may sensibly affect the eyes when the lids are closed. As branches of this nerve supply the lachrymal gland, and go also to the membrane of the nose, we see at once how pungent odours excite a flow of tears. The same nerve sending branches to the papillæ of the tongue and to the salivary glands about the lower jaw, makes it clear in what manner the reception of sapid materials by the mouth excites an immediate flow of saliva. By the communication existing between the fifth pair and eighth, by means of the glosso-pharyngeal nerve, we may at once perceive how the muscles of deglutition are associated or sympathize with the organ of taste.

The sympathetic nerve may be said to commence by small branches of the sixth pair, or abducentes oculi, while the nerve is passing through the sinus cavernosi, and by a reflected branch from the second of the fifth. These nerves

lay on the surface of the internal carotid, while in the carotid canal, are pulpy and tender, and form a plexus which surrounds the carotid artery. The trunk, after emerging from the carotid canal, is still small, and closely connected, for a small space, with the trunks of the eighth, or pneumogastric, and ninth, or lingual. Separating from these it forms a large ganglion, of a long oval form, which is opposite to the second cervical vertebra, and is called the superior cervical ganglion.

The nerve below this ganglion is very little increased in size, it descends on the anterior vertebral muscles of the neck, to the inside and behind the pneumo-gastric portion of the eighth pair, with which it is connected, as well as the carotid artery, by cellular substance. It forms a middle or inferior cervical ganglion, nearly where the inferior laryngeal artery turns toward the larynx. From this ganglion considerable branches arise, the principal of which is larger than the rest, turns outwards between the inferior laryngeal and vertebral arteries to form another ganglion, situated immediately over the commencement of the vertebral artery at the head of the first rib, and is by some considered as the last cervical, or first thoracic ganglion.

The cervical part of the sympathetic is connected with other nerves, and is distributed on various parts. By one or two short though thick branches, it is connected with the sub-occipital nerve. Behind the internal carotid artery, one or two pulpy nerves run forwards, and form many branches, which, with filaments from the glosso-pharyngeal, form a plexus, that gives branches to the gangliform expansion of the pharyngeal, and afterwards surrounds the external carotid artery, sending many filaments along its different branches. Other soft nerves going behind the internal carotid, together with a twig from the laryngeal of the eighth pair, form the laryngeus internus. The first and second cervical ganglion are connected by short thick roots with the superior ganglion of the sympathetic.

Branches are also sent off from the superior ganglion, which unite with filaments from the laryngeus superior to

form the *superficialis cordis*, or *ramus cardiacus supremus*. This nerve, on the right side, at the bottom of the neck, divides into branches, which send one or two filaments along the inferior laryngeal artery to the thyroid gland, which subsequently unite with the superficial cardiac nerve of the eighth pair, before the subclavian, and with the laryngeal nerve behind it. The *ramus cardiacus* on the left side ends in the cardiac plexus.

The second, third and fourth cervical nerves send an equal number of branches behind the *scaleni* and *rectus major* to the middle ganglion of the sympathetic. Branches are sent down from the opposite side of this ganglion, which unite and form the *nervus magnus profundus*; others are attached to the recurrent of the eighth, and the remainder go to the inferior cervical and first thoracic ganglion.

The sympathetic, having given off the principal cardiac nerves, consists of an anterior and posterior part, the former going over, and the latter under the subclavian artery, and these branches unite behind the artery; it then descends the thorax, over the heads of the ribs, forming ganglia of a small size, flat, and irregular, united behind with each of the *intercostals* by two, generally, sometimes by three short branches.

It is unnecessary to follow the sympathetic any farther in detail. It detaches nerves to supply the viscera of the abdomen throughout, forming numerous ganglia and plexuses, communicating in the freest manner with the surrounding nerves, from the first cervical ganglion to the last sacral.

Before recurring to the subject of *sympathy*, it will be necessary to add a few observations on the distribution and connexions of the eighth pair, which arise from the *medulla oblongata* at the sides of the bases of the *corpora olivaria*, and consist of the *glosso-pharyngeus* and *nervus vagus*, or *pneumo-gastric* nerve, on each side. The *glosso-pharyngeal* communicates with the *digastric* branch of the *portio dura*, and, with branches of the sympathetic and *pneumo-gastric*, forms a plexus that sends branches before

mentioned to the heart. It terminates on the tonsils, the upper part of the pharynx, membrane of the epiglottis and tongue, especially supplying the papillæ majores, and parts in their neighbourhood.

The pneumo-gastric nerve is frequently somewhat increased in size for about an inch below the foramen by which it emerges from the skull: this is sometimes called its gangliform enlargement. It descends within the sheath that includes the common carotid artery, at its outer and back part. It gives branches to the pharynx and larynx, and sometimes one or two filaments to the heart, which join the cardiac branch of the great sympathetic. The pneumo-gastric enters the thorax between the subclavian vein and artery, and sends upwards a recurrent nerve, which, on the left side, passes behind the arch of the aorta, and on the right, behind the subclavian. This branch ascends the neck, to be finally distributed on the muscles of the larynx, communicating freely, while on the way, with the sympathetic and the parent trunk. The great trunk next gives off branches, which form the anterior and posterior pulmonary plexus, also communicating with the sympathetic. The esophageal plexus is likewise formed by this nerve, and branches are given to the trachea and bronchial tubes. The pericardium and great cardiac nerve also receive branches from the pneumo-gastric. All the branches supplying the heart are derived from the sympathetic, and the pneumo-gastric. The latter, after passing through the diaphragm with the œsophagus, sends filaments to the hepatic plexus, and is distributed on the stomach; the left nerve going to the upper and left portion of the stomach, and the right to the under and left portion: the fasciculi from each have many connexions about the small curvature, forming what is called the coronary plexus, extending as far as the pylorus. Branches of the pneumo-gastric assist in forming the semilunar ganglion, composed by the union of the small cœliac ganglia.

Such is a slight sketch of the connexions established between the great organs of respiration, digestion, assimila-

tion ; and circulation. We have chosen to dwell on these, not because the various nerves which supply other parts of the system do not communicate as freely, but because we desire to show how these great organs are so immediately affected by injuries which are inflicted on any one of them.

When a healthy subject is exposed to the effluvia arising from the bodies of persons labouring under yellow fever, it is said that one of the earliest symptoms produced is a sensation of uneasiness and distress in the stomach. Recollecting the before mentioned connexion of nerves, this appears to us very easy of explanation. The agent disturbs the nerves of the lungs, yet this organ does not immediately show signs of disorder, the effect being transmitted to an organ possessed of a higher degree of sensibility, and more extensively connected with the brain and general nervous system. Odours inhaled, produce nausea and vomiting, where they are very offensive, or simply an increased flow of tears, and sneezing, if they are pungent or irritating. In the first case, the effect on the stomach is owing to the communication just referred to, and in the second to the impression produced on the nasal branch of the fifth, which is immediately connected with the lachrymal gland, duct, and muscles concerned in sternutation.

When highly seasoned food is taken into the stomach, it uniformly tends to produce engorgement of the vessels of the brain, or determination to the head. We can readily understand how this may follow an excessive stimulation of the extremities of nerves which are derived from the brain and form plexuses, surrounding the great trunks of the head. That such stimulation increases the heart's action is true, but the heart governs only the celerity of motion, and not the equal distribution of the blood. The action of vegetable poisons very uniformly produces a dilatation of the pupil, which we should attribute to the immediate transmission of the influence from the branches supplying the stomach to those of the third and fifth pair, supplying the iris, which we have seen communicate freely.

It may be objected to this, that the symptom results from

the pressure caused by the increased flow of blood to the head, though it does not appear to invalidate our conclusion. A patient who has received a blow, producing concussion of the brain, has very dilated pupils, and it is not always possible to excite contraction by the admission of a sudden light, showing that the powers of life are in a very low state. But a patient, whose brain is compressed by an effusion of blood, or a collection of pus, has not the pupils thus dilated, and they remain capable of a certain degree of contraction. A difference in degree of the same cause produces the effect of dilatation, the concussion almost destroys the vitality, the narcotic agent reduces the vital energy in a ratio proportioned to its virulence, and the parts more immediately connected with the nerves primarily acted on suffer most. Thus the respiration and action of the heart fall under the direct influence of such substances.

The act of vomiting is the joint operation of the abdominal, intercostal, diaphragmatic and pelvic muscles. This result is owing to the immediate relation of the nerves of the stomach with the sympathetic, which has ganglions with each intercostal nerve supplying the thoracic and abdominal muscles; with the phrenic supplying the diaphragm, &c.; and the muscles of the fauces or of deglutition, being in great part derived from the gastric, their relaxation at the time when the rest are in violent contraction is easily understood. The stomach is nauseated, the pharyngeal muscles relaxed, the abdominal, intercostal and diaphragmatic muscles are called into violent action, and the stomach is evacuated.

We can appreciate the necessity of a branch from the eighth pair to the tongue and fauces, when we observe, that unpleasant substances taken into the mouth, frequently produce nausea, and sometimes vomiting, because acting directly on the gastric nerve. This may be considered as a guard placed to prevent the introduction of improper materials, and is a very effectual one, where it is not rendered impotent by frequent abuse. The mere sight of certain substances produces nausea or vomiting. This is no ob-

jection, we have already explained how they may operate by effluvia on the lungs and stomach; where no effluvia are present, the nausea is the result of association, or the remembrance of a sickness produced by the same or a similar agent. Persons who have not been previously made sick in this way, are not likely to suffer nausea from the *sight* of an object which has no disagreeable *smell*.

In certain inflammations of deep seated parts, we prescribe blisters with great advantage. In a certain stage of pleurisy, pneumonia gastritis or enteritis, epispastics produce the happiest effects when applied to the surface of the thorax or abdomen. They are laid over, and first affect the extremities of the intercostals or lumbar nerves, and these are immediately connected with the sympathetic, and nerves which supply the inflamed organs. In consequence of their impressions on these nerves, the inflamed vessels recover their tone, and no longer allow the admission of an improper quantity of blood. The same blister applied at the extremities of the system does not do the same good, and therefore the result does not flow from the derivation of blood to the surface.

A more direct example may be cited, in the case of incontinence of urine, the consequence of debility of the sphincter vesicæ. The application of a blister over the sacrum, gives almost uniform relief, while a blister applied in other situations does not. In the first case, it is applied to the extremities of nerves having the most intimate relation with the nerves going to the bladder, and the effect is in the ratio of proximity.

From the best experiments in physiology, it is fair to infer, that the nerves and ganglia are entire nervous systems, or to a great degree independent of each other individually, although the perfect chain of actions demands the consent of the whole. In the case of those systems of nerves intended to produce sensation, it is necessary that they should have uninterrupted communication with the brain. But this is not so necessary to the others, nor do we conceive it essential that every remedial application should be communi-

cated to the brain before it affects the diseased part. To those who believe that remedies are first taken into the blood, this course may seem necessary, although it might puzzle them to prevent the medicated blood from reaching the diseased bowels, as soon, if not sooner, than it can arrive in the brain.

In a vast number of instances, it is conceded, that remedies act on the system by direct impressions on external or internal nerves. If we admit that certain agents are taken into the blood, do we thereby avoid attributing the operation of the remedy to the impression made on the nerves? Do we any thing in this way, but provide for the more diffused application of the agent? Is it not as easy to understand how brandy acts on the nerves of the stomach and intestines, or ammonia on the nerves of the nostrils or lungs, as to suppose them first introduced into the blood, and subsequently operating on the same nerves to which they were first applied?

The alteration of the character of the blood, is a *result* of a previous change in the vital energies, and we do not see the necessity of calling in secondary effects to explain the operation of original causes. However depressed the assimilating system may be, it cannot recover until an immediate change is produced in the state of the nerves, either by a peculiar stimulus applied, or the restoration of proper articles of diet. When the system recovers, the blood becomes purer, if this term be preferred, in *consequence* of the recovery of nervous energy, not *first* becoming pure, spontaneously, and then restoring the healthy action of the nerves.

The action of emetics, cathartics, epispastics, and indeed, of the whole materia medica, is owing to the impressions they make on the nerves, and any subsequent change depends therefrom. The more we examine the subject, the more thoroughly shall we be convinced of this truth, although, in many instances, we may suppose it possible to explain their operations in another way. Yet as the great mass of fact and analogy refers us to the mode above stated,

and as this leads us to a closer and more efficient study of the pathology and physiology of the system, and is the most generally applicable in practice, we cannot withhold our approbation of the doctrine.

It is true, that a considerable number of persons, consider the study of minute anatomy and physiology as unnecessary, or even prejudicial to the physician. This should in general, be attributed to an incorrect idea of the use and importance of these sciences, though frequently it springs from that indolence, which would find an excuse for inactivity, in depreciating the character of a study. Were physicians more thoroughly acquainted with the subject, and had they better notions of the philosophy of anatomy, the friends of the profession would not have to deplore the existence of so many *opprobria*. Sentiments of this kind, and not a wish to awaken controversy, prompts the writing of this essay ; could the author flatter himself, that it would be the means of exciting in any one the true spirit of investigation, he will not regret that it must be, necessarily, imperfect.

CASES.

ART. XI. *Case of a Scirrhus Tumour of the Cæcum, mistaken for an Aneurism of the right external Iliac Artery.* Communicated by THEOPHILUS E. BEEZELEY, M. D. of Salem, New Jersey.

BELIEVING the diagnostic of tumours situated within the abdomen, to be sometimes very difficult and obscure, and having more than once witnessed their nature to be entirely mistaken, I have endeavoured to delineate correctly; the following uncommon case, in the hope that, taken in conjunction with the history of other abdominal tumours, it may tend to throw a greater light upon them, and to prevent those errors of judgment and practice into which we are liable to fall in the present state of our knowledge.

On the 13th of 2mo. 1822, I was requested to visit Furman Mulford, Jun. aged 22 years, by occupation a farmer, in person rather of a delicate form, blue eyes and fair complexion. I found him confined to his bed, with a severe attack of palpitation cordis: his pulse beating at the rate of about one hundred and ten strokes in a minute, his countenance and lips remarkably pale, voice weak, and respiration somewhat impeded—skin moist, and of a moderate heat—some pain in the head—bowels rather costive, tongue pale and clean, occasionally sick at the stomach, and soreness of the breast, from the violent palpitations, which had come on suddenly and violently in the night, about thirty-six hours previous to my visit, but were at this time rather better.

He requested me to examine a tumour, situated principally in the right iliac region. It felt hard and irregular to the touch, seeming to be made up of two, united by a line running parallel with the linea alba, and extended from

Poupart's ligament, to about an inch above a line drawn from one anterior superior spinous process to the other, and from near the ilium to the linea alba, where its outline suddenly receded towards the spine. When the patient lay upon his back, the tumour projected only a very little distance above the natural level of the surface. There was considerable tenderness at the superior part of the tumour, at the edge of the lumbar region. There was no pulsation perceptible in it at this time, nor did I perceive any, until several weeks afterward.

The tumour, he attributed to a violent blow from a plough handle, received in ploughing, about eight months previous to its appearance. Three months after receiving this blow, he began to be attacked with colic (which occurred at intervals ever afterwards during his life) attended with some constipation, and relieved by mild laxatives. In the 11th month, 1821, when recovering from an attack of bilious fever, he first discovered this tumour and mentioned it to his physician, who, without examination, supposed it to be a rupture.

Upon further inquiry, I found, that in addition to the colic, he had had strong marks of dyspepsia for several months previous to the appearance of the tumour, such as gastrodynia, flatulence, stools resembling apple-sauce; with an occasional discharge of blood after attacks of the colic—variable appetite, inability to digest certain articles of food with ease, as new bread, vegetables, &c. Most of the attacks of colic which he suffered during my attendance, could be traced to his indulging his appetite beyond prescribed bounds. The palpitations came on about the same time with the first attacks of the colic, usually whilst at work, and continued for several days.

From the situation and appearance of the tumour, together with the dyspeptic symptoms, I was led to believe that it was the cæcum distended by hardened and impacted feces. He was therefore directed antispasmodics, mild laxatives, rest in a horizontal posture, and light food of easy digestion. The laxatives operated readily and freely,

but procured only thin and watery stools. In a few days his palpitations having subsided, he visited me at Salem,—being about five miles distant from his residence.

The nature of the tumour appearing very obscure to me, he was requested to show it to several of the physicians of this neighbourhood, and in the mean time, to relieve his dyspeptic symptoms, was put upon an alterative course of mercury, with occasional laxatives. Under this treatment (with the occasional use of a carminative mixture of calcined magnesia, oil of anise and paregoric, during the attacks of colic) his stools became much more natural in appearance.

He had several stools daily, not only from the laxatives, but also from the calomel, without, however, the appearance of any hardened fæces, or any perceptible diminution in the tumour. After continuing this course for two weeks, he was allowed to omit the laxatives (as they produced considerable sickness and vomiting at each repetition) in the hope that the calomel, operating as it did on his bowels, would not affect his gums. I was however mistaken, for in a few days they became tender, and were kept in that state about three weeks without any marked effect either upon the tumour or his general health. The latter indeed seemed in a regular ratio to decline, except during attacks of the colic or palpitation, when increased debility was more sensibly discerned. He had shown himself to two of my medical friends, one of whom expressed the same opinion of the tumour which I had—the other supposed it to have some connection with the liver, but receded from his opinion after having had a favourable opportunity to examine it. At the end of the above mentioned period, I obtained his father's consent to consult one of the surgeons of Philadelphia, and proceeding to make another examination previous to writing to one, I distinctly perceived on pressure, a pulsation in several parts of the tumour—and suspecting the possibility of an aneurism, I requested a consultation with my friends Drs. Keasbey and Swing. On meeting them the following day, the pulsation was so evident, that though we felt the obscurity of the case, from the very nature of tu-

mours situated within the abdomen—their liability to have a pulsatory motion given to them by contiguous arteries, and the want of many strong aneurismal symptoms, such as the peculiar thrill, much throbbing in the part, &c. Yet, our impressions were rather in favour of its being an aneurism of the external iliac, and if not that, a collection of impacted fæces in the cæcum. To the latter it was concluded once more to direct our practice, for a few days, and closely to observe the result. Doses of jalap and cremor tartar were given repeatedly, and copious enemata administered, which only produced large watery discharges from the bowels, mixed with a small quantity of apple-sauce like matter. The dyspeptic symptoms however were in some measure mitigated, and the colour of the stools above mentioned, appeared less frequently.

His debility had now considerably increased, as well as the tumour, and he was daily becoming more emaciated, though still retaining sufficient strength to walk about or ride short distances. About this time several of the physicians of the neighbourhood, and from Cumberland county, visited him and examined the tumour, most of whom agreed in believing that it probably was an aneurism. Among them was one whose opinion had great weight with the patient's family, from the respectable standing which he held, and from his having once seen an aneurism in the same place. He declared in the most positive terms that it was an aneurism, and agreed with us that it would be wrong to operate for it. By his representations the young man was prevented from visiting Philadelphia to consult some of the most eminent surgeons of that city, (which we had advised after the failure of the plan of treatment last mentioned) and induced to wait patiently for death. His case now being considered hopeless, he was only visited by Drs. Swing, Keasbey and myself, out of curiosity to observe the progress of a disease which we thought uncommonly obscure, and to relieve pressing symptoms.

The tumour continued to spread in various directions, particularly towards the umbilical and hypogastric regions.

Throughout the time he was under my observation, his pulse indicated febrile action, which though not severe, increased as the disease advanced towards its fatal termination. He had also frequent inclination to void his urine, probably from the pressure of the tumour upon the slightly distended bladder. There was occasionally considerable œdema of the lower extremities, and in the 4th month it suddenly increased, attended with severe pain in the right leg for a few days, with an enlargement of the right testicle. The œdema subsided several weeks before dissolution, and his emaciation was as great as I ever beheld. On visiting him about three weeks previous to his decease, a tumour, of the size of a large orange and somewhat elastic to the touch, had appeared directly in front of the aorta and above the umbilicus, which pulsated so strongly that it could be perceived through the bed clothes at the distance of several yards.

On observing this we were satisfied that it was an aneurism, and the doubts which before held possession of our minds now vanished. The following week the superficial veins on the front of the abdomen extending on the thorax, became enormously enlarged, from the blood which they were obliged to transmit in order to relieve the ascending cava. During the last week of his life he suffered considerably from difficult deglutition. He died I believe on the 20th of 6th month, 1823.

The following post mortem examination will show how entirely we were mistaken. The account was drawn up by my friend Dr. Keasbey, who performed the dissection in the presence of Drs. Swing, Archer and James Vanmeter of this place. I have to regret my absence at that time, being on a journey.

Dissection.

“ On cutting into the integuments of the abdomen scarcely any adeps was visible. On penetrating into the cavity and laying the integuments aside, the first thing which presented, was a large tumour, occupying the whole

of the right side, from the under side of the liver, down into the right iliac region, and extending over the spine into the left. On further examination this tumour was found to consist of about four inches of the ileum, the whole of the cæcum and five inches of the colon, in a scirrhus state, and the mesenteric glands enormously large and indurated. On passing my finger underneath this diseased mass, I found it tied down by firm and extensive adhesions—first to the posterior parietes of the abdomen, right kidney, under surface of the liver and to the fundus of the bladder. These adhesions were so firm that the use of the knife was required to separate them. The convolutions of this portion of the intestinal tube were also firmly united one to another, together with the enlarged mesenteric glands. When this diseased portion of intestine was laid open by an incision, no traces of its different coats remained, but it presented the appearance of a thick, solid, indurated mass not unlike the udder of a cow, boiled. No vestige was left of the longitudinal bands. The inner surface was uneven, spongy, without the appearance of any cell or valve of the colon, and ulcerated in several places. One of these ulcers was about the size of half a cent, and had penetrated through that portion of the intestine which adhered to the kidney, by which means it was prevented from opening into the cavity of the abdomen. The muscular coat seemed to have lost its power of contraction: indeed, from the thickness and structure of the coats, to me, it was reasonable to suppose that the natural peristaltic motion could not exist. The cavity of the cæcum and colon was much larger than natural, the circumference twelve inches, and the coats in some places more than an inch in thickness. This singular disease appeared to be advancing rapidly along the ileum and colon—the villous coat was evidently inflamed for several inches from the thickened portion, and the other coats assuming the same diseased aspect. Of the omentum scarcely any thing remained, except a thin transparent membrane, entirely destitute of fat, and empty of blood. The stomach externally was sound, but its in-

ternal surface had a slight appearance of inflammation, especially around the cardiac orifice: the pancreas and spleen retained their natural state—the liver was sound, though the lobulus spigelii was unusually enlarged when compared with the other lobes—the gall bladder large and distended with bile—the kidneys and ureters were natural. The thoracic viscera were sound, and so were also the aorta and its branches. The blood in the vena cavæ was dissolved like thin molasses without any coagula.

By Morgagni a remarkable disease of the bowels is recorded, the particulars of which I do not recollect—though I think it bears a strong similarity to this case. Bailie, in his *Morbid Anatomy*, mentions that, “When scirrhus affects the gut, the passage at that part is always narrowed, and sometimes so much so as to be almost entirely obstructed.” The passage in the above case was much enlarged, and no apparent difficulty existed to the discharge of the contents of the bowels.

ART. XII. *A Case exhibiting the ill consequences of a too long continuance of the elevated Position in chronic Inflammation of the inferior Extremities.* Communicated by WILLIAM W. FENNELL, M.D. of Charlotte County, Virginia.

IN the summer of 1820, I visited the Red Sulphur Spring, in Munroe county, Virginia, and in a few days after my arrival, I met with Mr. J. S. of Halifax county. The following is the history which he gave me of his case.

“Nearly two years since, he said, while lying on my bed, in the afternoon, I placed my legs across each other, on the back of a chair, and fell asleep, and lay composed for several hours. On awaking, and taking my legs down, with an intention of walking, I felt considerable pain in one leg, at the spot upon which it rested on the back of the chair. There also appeared to be a depression at that spot,

which is not entirely filled up at this time. In the afternoon of the day following I felt the pain greater—the spot became quite sore to the touch, and the adjacent parts appeared redder than natural.

“ These affections continued to increase, and my leg slowly to swell. Becoming uneasy, I sent for my family physician, who bled and purged me, and, elevating my leg above my body, as an auxiliary to the cure, he kept it enveloped in cloths, dipped in a cooling lotion—all which afforded me considerable relief.

“ This treatment was continued fairly for a few weeks, and I then gradually abandoned it, with a hope that nature herself would accomplish the cure. In this, however, I was disappointed—and in a short time I found my leg to get considerably worse, which induced me to send for another physician—who tried a similar practice, with the addition of blisters and stimulating unctions, as he supposed the inflammation had become chronic. These measures were used with regularity for several weeks, till getting impatient, and discouraged at my situation, I sent for a third physician. By this time my leg had become considerably swollen, though it did not give me so much pain as before, nor was it so red and inflamed—yet I could not allow it to be lowered without great increase of suffering.

“ He put on a bandage from my foot to my knee, and requested me to pour a pitcher of cold water on my leg every time the bandage became dry. By keeping my leg elevated, and the bandage tolerable tight, and with the cold affusion, I rested very comfortably. This plan was persevered in for more than two months, and, as I thought, with decided advantage, so much so indeed, that the inflammation seemed entirely removed from my left leg. Yet I could not use it—for as soon as I lowered it from the elevated situation in which it had been, my head would, for a few minutes, become giddy, the veins in my foot enlarge, and with so much pain and uneasiness, that I was compelled to resume the position, by which I was restored to ease.

“ The sensibility of the surface of my leg I now perceived

to diminish, and when I neglected to pour on the water, it would burn, itch, and pain me. On this account I was compelled occasionally to tighten the bandage, and to apply the water much more freely.

“ About this time small purple spots began to appear all over the surface of my leg, which caused me more uneasiness than any symptom that heretofore had occurred, and which have been increasing ever since. Discouraged, seemingly, at the result of his practice, my physician ceased to visit me, (unless when I sent for him,) which has been some months since, and I, therefore, thought it most prudent to visit this spring, as the last chance of recovery.”

Being in very easy circumstances, Mr. J. S. had, ever since his physician left him, indulged pretty freely in a rich diet, with the use of ardent spirits occasionally, which he had been in the habit of doing previously to his disease. By this course of living, an inflammatory state of system was excited, which urged him to resort to the spring much sooner than he otherwise would have done.

He travelled hither on a bed in a carriage, with his feet raised eighteen inches or two feet above his head and shoulders, and he was placed in bed, in that situation, in the room prepared for his accommodation. On examination, I found his leg nearly covered with purple spots, (or petechiæ,) and the surface as cold as though the limb were dead—which was doubtless the effect of the bandage and cold water. He was troubled a good deal with palpitation of his heart when he moved, and sometimes even when he was quite still—his pulse was about a hundred in the minute, with some hardness, and considerable quickness, especially in the afternoon—his bowels disposed to be constipated—he had occasionally slight headache, and his appetite was variable, though oftener wanting than otherwise. Considerable agitation, attended with palpitations of the heart, was produced in his circulation when he lowered his legs.

To rest it, and to give him ease, he had acquired the habit of placing his well leg in the same elevated position as

he did the diseased one—and I found it to have put on the same morbid character. He had, moreover, for several weeks, been using cold water, as in the other leg—and talked of applying a bandage to it in a similar manner.

Conceiving it to be imprudent, from the known qualities of the water of this spring, for him to use it, as he was labouring under considerable fever, I prohibited it entirely.

By small bleedings, laxatives, and diaphoretics, I succeeded in reducing his inflammatory symptoms, and prepared his system for the use of the water.

He now commenced with it sparingly, increasing the quantity as he found he could bear it, and was permitted a more liberal diet, as, by this time, he had become considerably emaciated from abstinence and medicine. Next, I had a footstool made, two feet high, to be placed under his legs, to keep them in the same elevated situation to which they had been accustomed—directing that an inch of each leg of the stool should be sawed off every morning, for five or six days—and then, for the same length of time, an inch and a half, to two inches, until the whole was cut away: and at the same time, to elevate the head of the bed, so as to let him lie in a more natural and comfortable situation.

The bandages were also ordered to be slackened every day, and the water poured on his legs to be diminished, until both could be dispensed with. By such means, I conceived the inverted action and determination of blood might be restored to their pristine state.

These measures were pursued, with considerable assiduity, for several weeks, when he was enabled to walk to the dining-room, (which was a hundred yards from his chamber,) without much inconvenience. Now he began to use the water at liberty, and experienced the best advantages from it.

Continuing to improve in regular progression, he returned home in the fall—and still slowly recovering, the next season he again visited the spring, by the use of the waters of which, he is probably as much renovated as he ever will be, from the impression which so long an affliction has

made upon his constitution. He, however, is rendered able to attend to his farm, and is in every respect much better than was generally expected.

ART. XIII. *An Anomalous Case of Acute Rheumatism*; treated by Dr. G. W. KEMPER, and communicated by Dr. PEACHY HARRISON, of Harrisburg, Va.

MRS. D—, aged about forty years, the mother of several children, rather spare than otherwise, with the exception of three or four attacks of rheumatism within the last ten years, had always enjoyed good health. On Wednesday the 26th of February last, she was attacked with chilliness, lassitude, soreness of the muscles and joints, and other symptoms of approaching fever. The next day she was confined to her bed, and on Sunday the 2d of March, I paid her my first visit. There had been nothing done to restrain the disease, and by this time, the general inflammatory state had attained to a degree of violence that I have seldom witnessed. The joints of her limbs, from the elbows and knees downwards, were affected with swelling, redness, and the most acute pain—and the muscles generally were in such a state of tenderness, that she could not bear the slightest motion, without suffering severely. Her skin was dry and hot—her pulse full and hard, and beat about ninety in the minute. I immediately drew about twenty-four ounces of blood from the arm, which made a considerable impression on the pulse, and abated the severity of the pain—I then gave her a cathartic of calomel and jalap, and left her about noon. In the evening I found her pain as violent as before, and her pulse full and hard as ever. Her medicine not operating, I repeated the dose, and drew about twenty ounces of blood, which again relieved

her of the pain for a short time—but on the morning of the third day, though she had been purged freely, she was no better. I again drew about twenty-four ounces of blood, with the same effect as before—gave the dulcified nitre in some tepid drink, which, by being frequently repeated, produced and kept up a moderate diaphoresis during the whole day: in the evening I repeated the bleeding to about sixteen ounces. On the fourth, the pain was not so violent, and the swelling had left her right arm and hand entirely. But her pulse being very little diminished in force, I let sixteen ounces of blood, and again in the evening about the same quantity. On the fifth I bled her twice, about twelve ounces each time, and repeated the purge. On the morning of the sixth, she suffered little pain, and the swelling nearly disappeared from the joints. But thinking her pulse still retained too much force, I again drew about twelve ounces of blood.

I had now in the space of five days, taken between ten and eleven pounds of blood. The quantity at each bleeding had been determined entirely by its influence on the pulse, and was always decidedly useful. The disease seemed at last to have yielded, and I left her confident that she would speedily recover. I soon found, however, that my expectations were delusive, for in about two hours after the last mentioned bleeding, she was seized with faintness, followed by darting pains through the lungs, with very hurried and difficult breathing. There now appeared to be hardly any remains of the disease externally. I gave her small portions of laudanum and ether, which removed the faintness, without any relief of the hurried respiration. Next, I applied a large blister to the breast, and cataplasms to the soles of her feet. Though the blister drew well, she was no better, except that the pain, which was before constant, was now only felt on moving the body. During the ten succeeding days, she was freely blistered on the breast and extremities, bled twice, about six ounces each time—was kept almost constantly in a state of gentle diaphoresis with antimonials, and tepid drink, and her bowels soluble by small doses of

sulphate of magnesia, without any sensible alteration of the symptoms. Her pulse was constantly at one hundred—sometimes a little hard, though generally easily compressed.

About the seventeenth day an œdematous swelling having commenced in her feet, and increasing rapidly, I again applied blisters to her ancles, which drew well, and continued to discharge largely for several days—and also gave the tincture of digitalis, but without any sensible effect. On the twentieth, I commenced with an infusion of bark, which seemed to be useful for a few days. The pulse now sunk to about eighty-five, the breathing was reduced in frequency, perhaps in about the same proportion, and the swelling seemed to be stationary. But on the twenty-fifth, she was attacked with a troublesome hacking cough, with her respiration as much hurried as ever, and the paroxysms of pain more frequent.

On the twenty-seventh day Dr. K. was consulted—and we agreed to give every six hours fifteen grains of the antimonial powder, with one grain of calomel and digitalis each, and occasionally Coxe's hive syrup. Her cough was checked in a few hours, and in about two days entirely left her. The action of the kidneys at the same time, was considerably increased—the swelling began to subside, and the pulse sunk to from forty-five to fifty, and became very irregular, without any change in her respiration. The digitalis was now discontinued, and the antimonial powder given alone. By the 4th of April, the swelling was entirely gone, though the disease obstinately kept its seat in the lungs. In addition to the antimonial powders, I now gave an infusion of gentian, and her pulse rose to from sixty to sixty-five, continuing irregular and soft until the eighth, when she began to complain of imperfect vision, and a flashing or sparkling from her eyes. For some time she had been so debilitated, as scarcely to be able to move a limb without assistance. But now she could rise up in her bed without any help, and her voice, which for some time had been but a whisper, returned as strong as in health. Her countenance, however, was wild—she talked incoherently, and in a very short time, became completely

maniacal, raving continually, starting with alarm at the slightest noise, and fearfully watching the motion of every one about her. From this time her breathing was easy and natural. To relieve the brain, her hair was cut close—cold vinegar and water applied to her head, and cataplasms to her feet. In about twenty hours afterwards, her right hand began to show signs of inflammation, which increased, and in three or four hours more she became rational, and made no complaint of her head.

This respite, however, was short. In less than twenty-four hours more, the inflammation left her hand, and the brain became as much affected as before. The scalp was now shaved, and ice applied to it, and cataplasms to the feet. No change taking place in about twelve hours, I laid blisters on her ancles and wrists, and continued the ice. These remedies were unavailing, and a large blister was applied to the scalp, with scarcely more effect. Not having slept for three days and nights, and talking incessantly, I gave her on the night of the thirteenth, seventy drops of laudanum, which composed her for about four hours. On the fourteenth, I applied blisters again to the extremities—gave a cathartic, and at night the anodyne. Thus, for four days, the cathartic was repeated every day, and laudanum at night, which always induced sleep for several hours. On the twentieth, we began to perceive an amendment, and in three or four more days, she was restored entirely to her senses. Though there now appeared to be no vestige of the disease, she was so extremely debilitated, that she could not to be raised in bed without fainting. I again had recourse to tonics, such as the infusion of gentian, columbo, and lastly, of the bark. Gradually she regained strength, and by the 4th of May, was able to walk across the room, and is now in good health.

ART. XIV. *Case of Hemiplegia, successfully treated.* Communicated by Dr. PHILIP TIDYMAN, of South Carolina.

THE subject of the disease was suddenly deprived of feeling and motion of the left side, on Monday night, the 10th of February, 1823, in extreme cold weather, while sitting near the fire in his kitchen. During the morning of the 10th, he was in good spirits, and followed, without interruption, his occupation of cook. He is a small slender black man, about forty-two years of age, was reared in the service of my family, and had generally enjoyed a great share of health. I was sent for in a few minutes after the attack, and found him labouring under a total privation of motion and feeling of the left arm, side, and leg, with a complete loss of speech, and a violent spasmodic affection of the masseter sterno-mastoideus muscle. To produce a revulsion from the head, a pediluvium was instantly ordered—a stimulating embrocation of camphorated spirit, laudanum, and volatile alkali was frequently used to the affected side and limbs—and the tincture of assafoetida and spirit of ammonia applied to the nostrils. Deglutition was sensibly impaired, insomuch that near an hour elapsed before he could be made to swallow forty drops of vitriolic ether with an equal quantity of the tincture of opium, in a wine-glassful of water, administered by a tea-spoon. To the calf of each leg a large sinapism was applied, and another on the posterior part of the neck. Early on the following morning I found the patient in a comatose state, with a weak, slow pulse. I ordered the affected side to be chafed with a mixture of the spirit of turpentine, laudanum, and volatile alkali. An emetic of ipecacuanha and antimonial wine was next given to him, which acted freely, producing a copious discharge of bile and mucus. In an hour after the operation of it, the muscles of the face became less rigid—the features assumed a much more natural appearance—and he was enabled to swallow with

less difficulty. Though he had regained his speech, he spoke with apparent pain and trouble. The stupor, which had somewhat subsided, was further removed by an enema of strong salt and water, to which was added sixty drops of the tincture of assafœtida.

The nurse now reported that the bowels of the patient were in a constipated condition, so much so as to make it adviseable to repeat the enema. The primæ viæ were thoroughly cleansed by it, and the patient, after taking some gruel, remained undisturbed until night, when I considered it necessary to have a large blister applied to the spine—directing, at the same time, plasters of capsicum to the soles of his feet, and frequent friction to the palsied limbs. He was also ordered to drink mustard whey. The next morning, the (12th,) I found that his voice was less thick, and his articulation more distinct. Complaining, however, of much pain in the head and eyes, I ordered a small blister to each temple, and garlic cataplasms to the ancles. Two drachms of the powder of valerian were mixed in a pint of water, of which he took a wine-glassful every two hours, with twenty drops each, of the tincture of musk and spirit of ammonia. His diet consisted of gruel and chicken water, and he was allowed to eat of such vegetables of the class tetradynamia as could be obtained.

On the 13th, he seemed considerably better. The pain of his head had quitted him, though he still complained of a slight degree of numbness about the side and leg. Yet with a little assistance he was enabled to sit up, and in the course of the day to walk a few steps across his room. When first attacked, his pulse was extremely feeble, and early in the morning of this day was at sixty. He drank for his breakfast a pint of strong coffee, with two tea-spoonsful of very pungent mustard mixed in it. The valerian, ammonia, and musk were continued, and he eat for dinner the half of a broiled pigeon, with a little brandy and water. At night the garlic cataplasms were removed, the affected arm enveloped in a mustard plaster for a few hours, and a cup of mustard whey given him to drink.

On the 14th I found the patient worse than on the preceding day. He had passed a restless night, his pulse at ninety-five, and complained of great uneasiness (the sensation of strangury) about the region of the bladder. His urine was of a crimson colour, and he had passed some drops of blood, which distressing symptoms were no doubt produced by the stimulants I had prescribed for the purpose of exciting the action of the vessels, and for removing the torpid state of the system. He was, however, soon relieved by fomentations, and by taking every two hours twenty drops of the compound spirit of vitriolic ether, with the same of the tincture of opium, and by drinking copiously of a decoction of lintseed, with dulcified nitre. At night I gave him ten grains of Dover's powder, and as soon as the least perspiration appeared, he was directed to drink plentifully of warm snake-root tea.

On the 15th he had much improved in strength, having passed a good night, and was able, by the aid of a stick, to walk about his room, and to raise his arm to his head with little difficulty.

Two grains of the powder of valerian, serpentaria, rhubarb, and ginger each, in pills, were given to him every hour through the day, and at bed time he took two grains of James's powder, with a decoction of *Sampson* snake root, to be drank warm through the night.

From this time he gradually recruited in his general health, though the arm in particular remained much affected. In my mode of treating the case, I henceforward varied very little: two grains of the James's powder were given as an alterative every night, with the daily use of tonics and a generous diet. As my business called me to Charleston about the 21st, I sent the patient down to that city. He was furnished with a bottle of the compound camphorated liniment, and was directed to take bark and wine, with which he was provided. During the passage, his limbs were every night bathed with warm salt water, from which he received much benefit.

On his arrival in Charleston, which was on the 27th, I

determined to have recourse to electricity to aid me in accelerating the cure, and for that purpose, I sent him regularly every day for a month to a physician, whose devotion to the science and practice of electricity has been well rewarded by his great success in removing by it many inveterate diseases.

By the continuance of this course, aided by the steady administration of valerian, bark, and wine, I am happy to add, that the patient has been perfectly restored to health.

REVIEWS.

ART. XV. *Retrospective Review.* "*Gulielmi Harveii opera omnia: a Collegio Medicorum Londinensi edita MDCCLXVI.*"

TIME, the infallible discoverer of the true value of human exertions, during the lapse of every year consigns to well merited oblivion, many works, from which their authors hoped to derive an immortality of fame. On all sides these perishable productions, are silently reduced to fragments, and swept away, leaving here and there, a few, which become daily more prominent and remarkable, as they stand towering alone, on the immoveable and indestructible basis of truth. Among such, the works of *Harvey* are pre-eminent—which, having survived the general wreck of the writings of his day, seem now destined to triumph over time, and remain as an enduring monument of the strength and the excellence of his mind.

The attention of our profession may with great advantage be recalled to the high importance of his researches, and the permanent usefulness of his writings. Many persons while they give him due praise for his discoveries, suppose it unnecessary to learn them from his own words, or think that much labour would be encountered in vain, were they to devote themselves to reading works written as long ago, and in a language now most undeservedly neglected. They are not aware that his inquiries are much better described by his own, than they have ever been since by any other hand—that his opinions are deduced from the most careful and correct examination of facts detailed in most expressive and forcible language, and exhibiting throughout the convincing evidence of a sound, well educated philosophy, under the never sleeping direction of a sober and experienced judgment.

There is another great advantage in studying the original works of a truly original observer, for as we follow him from his first and simplest ideas up to the clearest development and demonstration of the most noble truths, we catch something of the spirit of his philosophy, and see the superiority of learning realities, over an indulgence in the most splendid fictions. If *Harvey* be the writer, it is impossible not to be favourably impressed by his candour, his moderation, and his modesty. Though convinced that he had made a discovery which must inevitably convulse the medical world from one extremity to the other, and displace almost every received doctrine, there is no mark in his works, of inflated confidence, no anxiety to force mere assertions on mankind, nor any violence offered to the feelings of his contemporaries, either by extreme eagerness to advance his own views, or by exhibitions of disrespect towards ancient prejudices.

The works of *Harvey*, in the edition given by the London College, are preceded by a history of his life, which will very much increase the reader's interest in his favour. In this he will find how early, and with what assiduous diligence, *Harvey* devoted himself to the business of his studies, by which he permanently fixed the foundation of his future renown. The ground of *Harvey's* claims to originality are also examined in this sketch, and the insinuation of his being secondary to others, (sometimes repeated even at this period,) is entirely disproved; though at the same time all due credit is given to Servetus, Cæsalpinus, Columbus and Sarpi for the glimmerings of light contained in their writings prior to the dawning of that glorious day which *Harvey* spread abroad.

The first of his works, was the treatise on the "motion of the heart and of the blood," published at Frankfort. It is very justly observed by the London College, "that whether we regard the excellence of the arguments, the cogency of the reasonings, the lucid disposition of facts, or the proper arrangement of parts by which *Harvey* sustains his opinion, we may safely assert that nothing similar or equal

to it, has been advanced by any writer on the nature of animals.* This treatise exposed its author to much immediate envy, detraction, and even loss of professional business, so highly did his cotemporaries resent his effort to substitute fact for theory. But if they had the ignoble gratification of causing him a temporary uneasiness, the high triumph was reserved to Harvey of beholding their feeble exertions in favour of the ancient dogmata rendered unavailing, and their personal hostility made perfectly harmless.

It was by considering the valvular structure of the veins that *Harvey* was led to form his first correct ideas of the circulation. This induced a more extended and minute research into the whole sanguiferous system, which convinced him that the blood could only flow in certain directions—to the extremities by the arteries, and back to the heart by the veins. As this opinion if established must of necessity destroy the long received traditions and assertions of the ancients, whose lightest declarations had grown into authorities, it was perfectly natural that it should be thoroughly examined, and the facts on which it rested, cautiously scrutinized. Had this been fairly done, *Harvey* could not have asked more. But instead of pursuing this course the venerated of antiquity rushed to attack him with the eagerness of zealots, though with all the illiberality of ignorance. Where he offered *facts* they opposed *authorities*—where he made *experiments*, they made *assertions*—where he had demonstrated the truth, they had only exhibited implacable hatred to its establishment. “Great, indeed, is truth, and will prevail!” The investigations of *Harvey* gave to our profession new life, fixed principles, and a rational foundation for beneficial practice, while Riolan, Parisani and Primrose are only known to us by their violent efforts to check the progress of truth, and would have never been

* De quo libello sive argumenti dignitatem, sive vim rationum quibus Harveius sententiam suam tuetur, sive rerum ordinem lucidum et partium aptam collocationem spectemus, id quidem vere prædicemus, nihil in eorum scriptis, qui naturam animalium exponere aggressi sunt, huic par aut simile prolatum esse. P. III.

remembered by posterity, had they not by their perverseness of spirit secured to themselves an immortality of contempt. The attack made on Harvey by Primrose was too arrogant and impotent to attain for him the honour of a reply. He, like some of our modern philosophers, mistook his flippancy for wisdom, and his facility in book-making for strength and excellence of intellect. The work on which *Harvey* had expended *twenty-six* years of patient investigation, and which he offered to the examination of the profession in that calm and dignified assurance which could only spring from a thorough conviction of the justice of his views, this Primrose answered in *fifteen days*. The high station of *Riolan** secured to him the honour of a reply, of which his grossness and immodest querulousness rendered him unworthy. Believing his own opinions infallible, and angry that any one should dare to advance aught in contradiction to them, he thrust himself in the path of Harvey, to be miserably and deservedly trodden under foot.

The style of Harvey in his treatise on the circulation, is more remarkable for strength than beauty: to discover and declare the truth, was with him a greater object than the acquisition of fame as an elegant writer. His latinity, though uniformly forcible and perspicuously expressive of his ideas, is still not entirely chaste: he does not scruple when at a loss, to form a word to suit his purpose, which, in any language, is productive of inelegance and mischief. In his work on the generation of animals, his style is simple and unaffected, but exhibits a greater degree of accuracy, and more frequently rises to beauty and eloquence. The perfection or inaccuracy of his Latin style, is unperceived, when we attend to the merits of his investigations, the carefulness and soundness of his education, and the important results of his inquiries. Previous to detailing his experiments or arguments, he lays before the reader a fair

* Jean Riolan homme grossier, querelleur et sans modestie, que tous les médecins et anatomistes du temps craignaient et detestaient malgré son érudition."—*K. Sprengel*.

view of the opinions relative to the circulation, already accepted, and points out their intrinsic weakness and inefficiency, by the most convincing reasonings. After this he concludes by observing, that it will be very useful to examine the matter farther, not only to contemplate the motion of the heart and arteries in man, and all such animals as are possessed of a heart, but also to discern and search for the truth by frequent dissection and personal inspection of living animals.* How thoroughly he performed his task, may be gathered from his writings, which are so full and satisfactory as scarcely to have left any thing to be desired. He examined the circulating system in various orders of the animal creation, and found the correctness of his doctrines unequivocally established. By the dissections of living animals, and a minute attention to the relation of structure and function, his eventual deductions are made permanent by every principle of sound logic, as well as by every support of direct and undeniable testimony.

To a mind thirsting after knowledge, there is a valuable store of facts contained in the works of Harvey, which is far more extensive than is generally supposed. His researches on generation in particular, are full of the most interesting and instructive observations, which become the more precious, when we remember the high character and unspotted veracity of the collector. In this department, also, he has left little for others to observe, and it will be equally evident, that his works have often been the quarry from which writers have dug, without finding it convenient to acknowledge whence their materials were obtained.

It is worthy of remark, that in but few instances was *Harvey* deserted by his characteristic caution in theorizing.

* Itaque ex his et hujusmodi plurimis patet (cum ea quæ dicta antehac a prioribus de motu et usu cordis et arteriarum, aut inconvenientia aut obscura aut impossibilia diligentius consideranti appareant) utilis proinde admodum fore paulopenitius rem introspicere; arteriarum et cordis motus non solum in homine, sed et aliis universis animalibus cor habentibus contemplari; quin etiam vivorum dissectione frequenti, multaque antopia veritatem discernere et investigate. Proem. p. xix.

His doctrine of generation is certainly the child of fancy, rather than the descendant of actual observation or powerful reasoning—though even here, if we have studied his preceding works, we shall have gained enough of his best philosophy to render his errors harmless, and his facts of great utility.

In examining the incubated egg at an early period, he was surprised to find that the red blood was visible before the heart or vessels were distinguishable. This induced him to inquire into their priority of formation, and he rather decides in favour of the priority of the blood.* In this case he does not seem to have examined the subject with sufficient carefulness. We can, however, readily believe, that the red blood may be seen in such delicate textures as the vessels of an incubated egg, before their tunics or even the heart itself, has become sufficiently opaque to reflect the light. Whatever be our opinion as to the peculiar nature of the blood, we cannot suppose it to be self formed, or made without instruments, and hence we infer, that wherever blood can be seen, vessels of various kinds must be co-existent, although it may be entirely out of our power to describe the order observed by nature in the formation of any part of the system.

To become a physiologist without perusing the writings of Harvey is possible, though he who studies them attentively cannot fail to be a *better* physiologist than one who does not. Independent of his results, the method he followed to attain them, will produce an excellent effect on the mind of the reader, who will discover an earnest of Harvey's future glory in his early habit of cautious investigation and methodical industry. As we are not among those who believe professional excellence to be the result of happy accident, we shall be glad to find so excellent an example more generally studied. Harvey died in 1657, says Kurt

† Plurimum autem ambigo, utrum vesicula sive punctum saliens ac sanguis ipse sit antiquior: num scilicet liquor contentus ac vasa continentia. Videtur autem quod continet, continenti gratia fabrefactum esse; ideoque posterius efformati. Exer. xix. p. lxix.

Sprengel, but has left an immortal name, which the most distant posterity will not pronounce without veneration and gratitude.

ART. XVI. *Sopra la maniera meglio atta ad impedire la recidiva delle Febbri Periodiche già troncate col mezzo della Chinachina.* Dissertazione di PIETRO RUBINI, Professore di Clinica in Parma; Coronata dalla Società Italiana delle Scienze. Firenze 1807.

THE medical mind of Europe has, undoubtedly, within the last twenty years, been roused out of the torpor into which it had sunk, and is now exerted with a degree of vigour and success productive of the most important results in every province of medical science. With the writings and general proceedings of the profession in England, France and Germany we are exceedingly conversant, such is the intimacy of our intercourse with these countries, and the eagerness with which we seek intelligence. But as regards Italy the case is very different. Connected with her only by slight and casual relations, literary as well commercial, we know little of the career of her improvements, and can scarcely claim, with perhaps a few exceptions, even an acquaintance with her language. Enough however has transpired to convince us, that, in common with the rest of Europe, this favourite region of genius and literary enterprise has caught the spirit of the times, and is actively engaged in the scheme of medical reformation and advancement. We are not sensible, under these circumstances, that we could render a more profitable and perhaps acceptable service to our readers, than by occasionally presenting them with an analysis of some of the best of the modern Italian medical writings. Entertaining this conviction, we now propose to bring before them a work which is not less entitled to attention from the deep and pecu-

liarily interesting nature of the subject to us, than from the ability with which it is treated.

It is a Dissertation that obtained the prize offered by the Italian Society of Sciences in 1803, for the best essay on the following question:—*To determine by conclusive experience a method more certain and less disagreeable than that hitherto followed, for preventing the return of periodical fevers, already cut short by the Peruvian bark.*

How far the author has answered the wishes of the society will be best seen by the following abridgment of his plan, divested of collateral support and foreign illustration.

The division which he adopts of intermitting fevers into three species of *sthenic*, *asthenic* and *irritative*, is, according to him, similar to that laid down by Celsus, L. 3, Cap. 8. and more recently assumed by Frank in his treatise *de Morbis Hominum*, in which he divides intermittents into inflammatory, nervous and gastric.

The first, or *sthenic* kind, most apt to occur in young robust subjects, who indulge in stimulating drinks and strong food, comes on more usually in the spring. They are described by Hippocrates, Huxham, Stoll, Borsierus, Peter Frank, Giannini, Gelmetti and Rammazini, the last of whom recommends for the cure of vernal intermittents bleeding, and cold water, to the exclusion of cordial remedies. Of this nature are the periodical fevers which Huxham found exasperated by irritating remedies—and of such we read in Baglivi, Cleghorn, Le Fevre, Rush and others. To this head also we must refer those intermittents, which, on the authority of respectable writers, have been cured by bleeding or evacuations generally, by a very low diet, and by the depressing passions.

Under the *asthenic* species our author places most autumnal intermittents, and those which occur in summer. These are aggravated by bleeding, purging, and like remedies, as we learn from Giorgi, Amato, Lusitano, Castelli and Rammazini himself, in one of the epidemics which he describes. It is fevers of this description alone, the returns of which we can hope to prevent by the Peruvian

bark, unless we should with some admit the improbable supposition of its being a specific in intermittents. The periodical fevers which are endemic to certain countries, as in the plains of Lombardy, and in Zealand, to which we might add the sea-board of our Middle and Southern States, are regarded as asthenic by our author, who supports his opinion by the nature of the other diseases there prevailing; such as anorexia, dropsy, cachexia, &c. The third species, or the irritative, is considered not "less certain, less numerous, or less recognized by physicians." To it belong all those intermittents occasioned by indigestible substances and worms irritating the *primæ viæ*: also those which depend on wounds, tumours, schirri, tubercles and the like diseases of the viscera. These latter have been termed symptomatic, secondary or spurious.

Those who insist on one sole cause of intermittent fevers may be disposed to view all these irritants, as merely exciting causes in subjects previously exposed to marsh effluvia: but the fact of such fevers being the direct consequence of irritating and occasionally debilitating causes is too well attested to admit of our refusing our assent. We shall hereafter have occasion in a subsequent review, to mention the reasonings and remarkable case adduced by Giannini in his work, but for the present shall rest satisfied with the additional testimony of Alibert to the same purport, from which it would appear that intermittent fever has been caused by bad water, by fright and cold combined, and by an excess of application to anatomical pursuits. We, nevertheless, must dissent from our author, when he speaks of irritative intermitting fevers, as equally numerous with those of the other species, and as well recognized by physicians.

From the above division, it results, that the question proposed by the society, viz. the means of preventing the return of an intermittent fever, already checked by the bark, can only apply to the asthenic species, as the only one in which the bark is admissible, and to this the author directs his attention and inquiries.

The abandonment of the Peruvian bark by some practi-

tioners, and the prejudices existing against it in the minds of others, are attributable to its being used in the sthenic forms of periodical fever. In accordance with this assertion are some of the most celebrated names in the profession, who all agree that the bark is injurious, unless by nature or art the patient be debilitated—that is to say, unless the diathesis, or nature of the fever, be changed. Grimaud, in his *Cours de Fievres*, tom. iii. p. 247, after citing Monro and Pringle, confirms their experience by asserting, that, until evacuations have been premised, and until after the sixth or seventh paroxysm, bark cannot be used with advantage. Quarin, in speaking of vernal intermittents, Cullen, Gelmetti, Giannini, and others, express themselves with equal reserve in recommending the administration of the bark.

The inutility and noxiousness of the bark is not less established in the intermittents of the third or irritative species—as proved in the writings of Borsierus, Peter Frank, Van Swieten and Vacca.

These views are in perfect conformity with the doctrine of Broussais, who prohibits a recourse to the bark so long as the stomach exhibits signs of inflammation or irritation, as evidenced in the dried and furred tongue, hot and red skin, &c.

Much, however, of this advice and caution in the use of the bark is more peculiarly applicable to temperate climates. In more southern latitudes, and between the tropics, where the skin performs its functions, and is soft, even a loaded tongue, provided it be moist, or other evidences of slight gastric derangement, will prove no serious impediment to the administration of this necessary and indispensable febrifuge, which, in such situations, acts with a promptness and a certainty, that would astonish those who have not, like ourselves, witnessed its wonderful effects.

In the intermittents which are called fevers of habit, where all irritation has been removed, and no perceptible cause exists for the prolongation of the disease, our author is of opinion that bark will be of very little service, and only succeeds by chance. Some strong shock—such means

as may revolutionize the system, are now required. We are told, on good authority, of cases of this description having been cured by occupying fixedly the attention, and exciting powerful emotion, just before the expected approach of the paroxysm.

Next, our author lays down, as an established principle, that the states of *predisposition*, of *disease*, and of *convalescence*, are of the same nature, differing only in degree, so that convalescence may, according to Malfatti, be not inaptly termed a *predisposition to health*, or a gradually decreasing disease. We have not time, on this occasion, to enter into an investigation of the correctness of the assumption, in favour of which much plausible reasoning, supported by an appeal to facts, might be adduced.

That asthenia is the usual character of those intermittents partially cured but soon returning, is evinced in the general fact of such relapses being most apt to occur in infancy and old age—in the autumnal rather than another season—in warm climates, in those who have long suffered under its attacks, and who are consequently much enfeebled, and in others exposed to any debilitating cause, as the use of fruit, indigestible vegetables, and herbs, which enfeeble the tone of the stomach and bowels. Cold, humidity, and the depressing passions, produce similar effects.

In illustration of this doctrine, our author cites cases of relapse from the use of laxatives, as recorded by Sydenham and Willis, or from a purge or a bleeding, according to Gensclia, in an epidemic intermittent, which prevailed in Hungary, and finally the history of a young woman, narrated by Strack, who, for several months, always had a relapse at the period of her menstrual flux. In conclusion, the dependence of relapses on remaining asthenia is evidenced by the circumstance of the most enlightened practitioners having found by experience that tonics, whether dietetical or pharmaceutical, are the fittest means to prevent these dreaded effects. If in cases of this character, where relapse has taken place, or been threatened, benefit has followed the use of an emetic or a purge, we must attribute it to the re-

medy correcting the disorder of the stomach, produced by irregularities in living, or accumulation of indigestible substances—and refer such cases to gastric irritation:

The point exclusively established of the tonic treatment being the only and true one, to prevent the return of intermittent fevers, our author next enters into an inquiry, why a plan, sanctioned by general experience, and in the power of all to pursue, should, though at times successful, have so often failed. He thinks the defects in the present system are referable,

1st, To the same quantity of bark being prescribed or recommended by writers and practitioners in fevers differing in their grade and violence, as if the intent was to administer a specific, rather than to remove debility.

2d, To the too small quantity of the bark directed by the greater number of physicians in intermittents—a charge to which many recent and celebrated writers are liable.

3d, To the vicious methods in the exhibition and continuation of the bark to prevent returns of fever. One consisting in ordering the medicine in common doses, till the paroxysm is stopped, then repeating it in smaller doses at daily intervals: the second, after the fever is checked, directing small doses daily, for a longer or shorter period. Both are erroneous, and have the fault in common, by diminishing the dose, of producing inequality in the degree of stimulation, sudden effluxes, contrary to the regular wants of nature, and debility in place of strength—provoking relapses rather than preventing them. Overlooking these consequences, and the well known law of the animal economy that habit diminishes the effect of stimulus, and after a time, where the organization is intact, render the body insensible to its influence, some writers, as Dupau, (*Considerations sur la Nature et le Traitement du Rachitis*,) assert, that bark, though at first a tonic, ends, after a prolonged use of it, in producing directly opposite results.

4th, To the injudicious and incongruous combination of saline and other counter-tonic remedies with the bark, to

fulfil the indication of some false theory, as to dissolve inspissated bile, to remove obstructions, &c.

5th, To the too great confidence reposed in the tonic power of the bark, whereby the sole reliance for the cure of intermittent fevers was placed in it, when the disease was so decidedly asthenic as to require stronger excitants, and more diffusible stimuli. Both Sydenham and Huxham discovered the necessity of combining, in many instances, cordials and aromatics with the bark.

Lastly, to the old and fallacious hypotheses of a morbid matter to be expelled, a fermentation to be completed, a depuration of the blood to be accomplished—in virtue of which it was thought necessary to let the fever run its course for a certain period, without any attempts to arrest its progress, to the great prejudice of the patient, who was thereby more liable to a relapse.

Our author next lays down his own practice, which he found eminently successful in preventing returns of fever. It is nearly as follows. Immediately on his meeting with a periodical fever, and ascertaining, by attentive examinations, that it belongs to the asthenic species, he endeavours to cut it short by tonics, with the advantage of conquering it at an early period, by weaker doses, and checking all the unpleasant train of symptoms, which mark increasing asthenia. But, as the cutting short the fever is only the removal of one degree of asthenia, in place of the asthenia entirely, the object proposed, whereby convalescence is shortened, or that state of asthenia which we have seen is the base of future relapse; it becomes necessary to ascertain, by appropriate signs, the degree of debility, and, in consequence, to proportion the strength and dose of the tonic. In all cases of doubt a large is preferred to a small dose.

“With the view of rapidly removing the asthenia, I exhibit fearlessly and steadily, in a few days, the quantity of tonics which is deemed necessary in the state of the case, and which others are in the habit of administering slowly, and in longer intervals of weeks or months.”

Our author always found it easier and less annoying to

the patient, for the latter to take remedies when oppressed disease, and eager to get clear of it, than when engaged in business or pleasure, and forgetful or unmindful of the necessity for them.

Where the debility is considerable, he of course unites other more diffusible and active tonics with the bark, such as serpentaria, virginiana, colombo, gum ammoniac and camphor. But when in this list he includes tartrite of antimony, which, he says, when thus combined is no longer emetic,* he strangely forgets his own principles, and gives into one of the very errors which he had before pointed out.

Opium is highly lauded. "It increases the tonic power of the bark, without sensibly augmenting its bulk; it prevents the purging which the bark alone not unfrequently produces, and in consequence of which, it cannot by itself arrest the fever, and in fine, the disorder of the stomach in certain irritable habits, and stops many troublesome and disagreeable symptoms."

Two precepts are insisted on, in the progress of the cure. The first, not to pass from the use of strong stimuli to weak or deficient ones. The second not less essential, is to change the medicine from time to time, where it is necessary to persevere for a considerable period in the use of stimuli.

Lastly, our author makes a tonic and exciting regimen in all its extent, enter into the curative plan of intermittents.

The essay is concluded by considerations on the other causes assigned for relapses in intermitting fevers—but as this presents nothing of any moment, we may sum up our opinion of the author's claims to public gratitude by giving his own language on the method he lays down.

"It is only the rational re-union of all those means which experience had pointed out in an isolated way, as useful and necessary. If experience indicated to some faithful observer,

* As we might naturally expect, when we know that the best antidotes to the antimonial poisons are the astringents, as bark, gall nuts, &c.

as was evidenced to us, that the careful and prompt exhibition of the bark, was, of itself, sufficient to diminish and prevent relapses—if the same guide pointed out to others, that a larger quantity of tonics produced the same effect—if the utility of the exciting regimen was decisively proved by others—if in fact, one alone of the means indicated, was often adequate in the hands of many learned and faithful experimenters to obtain a lasting cure—who does not see how much greater efficacy and security of action we may expect from the simultaneous combined energy of all these means united ?”

We here dismiss our author with a regret, that our space will not allow us to enrich our Journal with further extracts from his valuable work. We shall, however, resume the subject in our next number, and give a copious analysis of the treatise of Giannini, on the same disease, which is of later date, and eminently distinguished by original views, and raciness of intelligence.

ART. XVII. *History and Method of Cure of the various species of Palsy: being the first part of the second volume of a Treatise on Nervous Diseases.* By JOHN COOKE, M. D. F. A. S. Fellow of the Royal College of Physicians, and late Physician to the London Hospital. London: printed for Longman, Hurst, Rees, Orme and Brown, 1821.

WE promised in our last number,* to continue our critical analysis of the valuable writings of Dr. Cooke on the cerebral and nervous affections. As next in order, we now take up his work on palsy, which, though not so elaborately composed, is essentially distinguished by the same qualities as the preceding treatise on apoplexy, and lays claim to nearly an equal share of merit. Most of our remarks on the

* Vid. Review of Cooke on Apoplexy.

nature and character of the one, are applicable to the other production, and hence, referring to what has already been said on these points, we shall, without any further preamble, proceed to give our readers some account of the work before us.

Between palsy and apoplexy there is a close resemblance: they are convertible diseases, often reciprocally producing each other, and, therefore, palsy may be either a primary, or a secondary affection, consequent on apoplexy. By the ancients these were, indeed, considered as similar diseases, differing only in degree—the first being an universal, and the second a partial affection dependent on the same causes, and such an opinion, with some few exceptions, is entertained at the present time.

The common division of palsy, is into general and local, and to which the terms *hemiplegià*, *paraplegià*, and *partialis*, are applied. By the first, is meant a diseased longitudinal section of the body, from the head to the feet, by the second, a transverse section at any point, from the neck downwards—and by the third, an affection of any individual part, internally or externally.

Of general palsy, *hemiplegià* is the most common, and the remarks on the disease which we are now to offer, will, for this reason, have reference more particularly to it.

In its mode of attack palsy varies. Sometimes coming on suddenly, without any premonition, and sometimes is preceded by a train of symptoms, very much like those formerly noticed as the precursors of apoplexy. In other instances, its approach is still slower, there being a weakness of a limb, or part of the body, for weeks, months, or years, gradually increasing, till the disease becomes established. Now and then, we have cases of it *intermitting*, alternately attacking, and disappearing at short intervals, and finally, it ceases or is confirmed.

This is a disease in which there is a loss of the power of motion in certain parts, and sometimes also with a loss of sensibility. It may attack either the external muscles, or internal organs, as we shall presently see. The part affected

is generally more or less numb, and cold, and pale at the moment, with convulsive twitches—and where the muscles of the face are affected, there is some distortion of the countenance, by a drawing to one side of the mouth, eye, or both.

The vital and natural functions are for the most part little disturbed. “The action of the heart and lungs are, indeed, more languid, and the secretions, and excretions, less regular than in a state of health, though this is not usually the case.”*

At first, the pulse is feeble and irregular, certainly less forcible than in apoplexy, though we have seen it otherwise, and is most apt to be stronger and fuller on the affected side, to which, however, there are exceptions. Concerning the degree of temperature, a difference of opinion exists. By Mr. Earle, who has devoted great attention to the inquiry, it is affirmed, that he uniformly found paralytic limbs colder than any other portion of the body, and the same, he reports, was confirmed in twenty-five cases in the Bath Hospital. But the general fact has been denied, and directly the contrary is asserted, by some respectable authorities, among whom is Mr. John Hunter. Even admitting it to be occasionally true, we should be disposed to ascribe the increase of temperature, to the artificial warmth from the envelopes of the limb. Whatever view we take of the origin of animal heat, we are necessarily conducted to such a conclusion. Exactly as an animal, or any portion of the system of an animal, retains the vigor of vitality, so is the capacity of generating and preserving an equable temperature, amidst exposures of every kind.

It is commonly supposed, though not correctly, that the affected parts are deprived of sensibility. We have known them to be most violently pained, to such a degree, indeed, as to draw forth as strong an expression of suffering, as in acute rheumatism or tic doloureux. Cases of similar import are recorded. “I never saw an instance of palsy, says Dr. Cooke, in which sensation was entirely lost,” and hence, he considers it as an exceedingly rare occurrence.

* Cooke, p. 5.

“The other senses are,” continues he, “often little injured, sometimes remain wholly unimpaired, and in some instances, become preternaturally acute.” We learn from Heberden, that he once attended a paralytic patient, whose sense of smelling was rendered so much so, as to furnish perpetual occasions of disgust, and he mentions another case, in which all the senses were in this acute state.*

In palsy the intellectual faculties are often much impaired, and sometimes nearly destroyed. The memory especially suffers. It is said, by the late Dr. Rush, that it first fails as to words, next as to time, and then as to places, ideas and persons successively. Whether this order is so regularly observed, we have not had sufficient experience to determine positively—though we think it not at all probable. Cases exist without number illustrative of various defects of memory. Galen tells us; that he had frequently seen persons who had forgotten the alphabet, their occupations, and even their names. We are told by our author that he had heard of a gentleman, who, by a fall on his head from a horse, entirely lost the knowledge of a particular language, with which he had been well acquainted. Wepfer also furnishes a very curious case of this kind, and Baillie, in the fourth volume of the *Transactions of the Royal College of London*, relates that a gentleman, aged fifty-six, who, seized with symptoms of compression of the brain, became completely paralytic on the right side. By this attack he lost his recollection of the words of his own language, except a very few, which he pronounced with the greatest distinctness, with a great variety of tone, to express pleasure and displeasure, joy and sorrow, to explain the circumstances of his disorder, and to give directions about what he wanted, without being aware, they were not the proper words to convey his meaning.†

The temper is also much affected in this disease, the mild and the placid becoming peevish, petulant, and morose, or directly the reverse happens. To this purport there are

* Cooke, p. 5.

† Cooke, p. 10.

several cases recorded, in which the most happy change took place.

The causes of palsy are so similar to those of apoplexy, that it is not necessary for us again to enumerate them particularly. Whatever occasions the one, is productive of the other disease. But this regards general palsy. The local form of it, may proceed from injuries done to the spinal marrow, or even to a nerve itself supplying a part.

The predisposition in the main, seems to be connected with a certain age, few persons having the complaint before the meridian of life, and after which, becoming still more liable to attacks. We have, however, seen it frequently, in all its varieties, in children. But it is supposed that something like an hereditary tendency to it exists, and which we presume depends upon a transmission of the peculiar configuration of person formerly described in our consideration of apoplexy. The exciting causes are precisely the same as in that disease.

It is a very curious and interesting fact, now fully accredited, that in all instances of its having a cerebral origin, the paralytic affection is on the side of the body opposite to that of the brain in which the disease is located. This was first noticed by Hippocrates, and subsequent examinations confirm it. Not to mention the names of Morgagni, Haller, and Scarpa, who bear testimony to this effect, we shall be content to cite the result of some recent dissections.

“ M. Serres says, that he has dissected with attention one hundred and seventy-one bodies of persons who had died of cerebral apoplexy with complete hemiplegia, and that in every case he found the hemisphere of the brain opposite to the paralytic affection materially altered in its structure—that he had examined the brain of forty-seven hemiplegiac persons who died in the Hôpital de la Pitié—and that he had forty-seven times seen disorganization in the lobe of the brain opposite to the paralysed side: that he had received from the hospitals of the Saltpetriere, the Bicetre, and the Hotel Dieu, about one hundred and fifty brains of hemiplegiac persons, and always without a single exception, the alteration in the encephalon was in the lobe opposite to the side affected. Hence he asserts, that the

cerebral disorganization always occupies the lobe opposite to the side deprived of motion, in the cerebral apoplexy. M. Serres allows that statements, very different from his, are to be found in authors, but he is persuaded that they are erroneous."

As a solution of this extraordinary problem, it is alleged, that a discussion of nerves takes place, and to this it is owing. But while so much is admitted, the exact point at which it happens is warmly disputed. Being rather a physiological inquiry than one which concerns our subject, we shall not proceed further with it.

From what has been said, it might be imagined that the *post mortem* appearances in palsy would be the same as in apoplexy, and that the two diseases are dependent on essentially similar states of the brain. This had long been the received doctrine, though it is now very gravely, and we may add, ably controverted. In our former article, to which we have so often alluded, we cursorily stated the peculiar notions of M. Serres on the subject of these diseases. Denying that either of them is owing to compression of the brain, he maintains, that the effusions of serum, and extravasations of blood, generally assigned as the cause, are the mere effects of pre-existing irritation or inflammation in the meninges, or to the same, or some other morbid condition of the substance of the organ itself.*

To support these views, he appeals to an extensive series of dissections carried on in the hospitals at Paris. Of one hundred cases of apoplexy, twenty-one were simple, and seventy-nine complicated with paralysis—of the former of which, sixteen showed the pia mater injected—with dilated vessels—and the tunica arachnoides opaque and thickened—and there was much serous effusion. The remaining four of the twenty-one cases presented sero-sanguineous effusion, attended by nearly the same state—though a somewhat more altered structure of the membranes.

* It is but justice to Dr. Physick to state, that pathological views of this kind were advanced by him in his Inaugural Thesis, published at Edinburgh, in 1792.—EDITOR.

But in the cases of complicated apoplexy, the substance of the brain itself he found *changed*, with no affection of its envelopes. Excavations were met with in its structure, filled with blood of various appearances—while the surrounding substance of the organ was red, irritated, inflamed, or indurated. He thinks, therefore, that he is entitled from these, and further corroborative examinations made by others, to conclude,

“ 1st, That when an apoplectic attack presents no symptom of paralysis, we may presume that its seat is in the meninges, and that the substance of the brain is not dilacerated or altered.

“ 2d, That when, on the contrary, paralysis becomes complicated with apoplexy, it is no longer in the meninges, but in the brain itself, which is the principal seat of the irritation.

“ 3d. That serous, sanguineous, sero-sanguineous, and purulent effusions, are owing to irritation in the meninges or the brain, or to rupture of arteries or veins, which may take place during apoplexy, though subsequently, and as the effect of the previous irritation.”

Doubtless these are very original and ingenious views, and proceed from a source so respectable as to command our utmost attention. Before, however, we implicitly adopt them, we ought, perhaps, to pause, and wait for further and confirmatory evidence of their validity. As to the abstract position of serous effusion, or even *sanguineous extravasation*, following irritation, or other diseased states of the brain, it has some collateral support from the consideration, that the same happens with regard to the lungs. The effusions, extravasations, and hemorrhages of these organs, are indisputably dependant on a pre-existing morbid condition, and even where a rupture of a vessel takes place, it is no exception—as here, except in case of violence, it gives way by losing its natural strength, from the effect of the prevailing disease.

But whatever opinion we may adopt on this point, we must still consider palsy as a gastric, as well as a cerebral affection. The arguments by which such a view is sustained, are

the same employed by us, in reference to apoplexy—derived from a contemplation of the causes, symptoms, and mode of cure.

It is, indeed, better established, since confessedly there is one species of the disease, originating from lead, and other poisons, unequivocally of this nature—not to refer particularly to the cases brought on by worms, or irritating sordes in the *primæ viæ*, &c.

In relation to paraplegia, it is commonly believed to be dependent on certain derangements of the spinal marrow, and which may be owing either to mechanical injuries or to the slower operations of disease, by which its functions are impaired. That such is the ordinary source of the affection cannot be denied—though it is, perhaps, no less clear that in many instances it has its origin in the brain. To this fact medical attention has lately been called by the celebrated Baillie, who has written an interesting paper on it. The disease, he says, sometimes makes a very insidious approach. There is, at first, after some previous head affection, nothing more than a slight numbness in the limbs, with an appearance of stiffness or awkwardness in the motion of the muscles. These symptoms gradually increase till there is difficulty in walking, and even in maintaining a balance on the feet. The disease is slow in its progress, and sometimes continues for years. It occurs mostly in persons beyond the middle of life, and oftener in men than women.

With respect to partial palsy, this may proceed from the brain, the spinal marrow or a nerve. Whatever interrupts the flow of that influence which a part requires for the due performance of its actions or functions, whether the obstruction be in the fountain itself, or its ramifications, it is productive of the same effect in kind, though not in degree.

The partial palsies may be considered as they consist in a want of sensation or of motion. Examples of the former we have in the affections of the retina, and of the olfactory, the gustatory, the auditory, and of the nerves of touch: and of the second, in the loss of the power of motion in the muscles of the eye lids, or of deglutition, or of the organs of

speech, or of respiration—and also as regards the action of the stomach, bowels, urinary bladder, &c.

Concerning the diagnosis in palsy, this is not at all difficult as to other diseases. The case which resembles it most is apoplexy, and the distinction between them is so clear that it need not be pointed out very circumstantially. It may be sufficient to remark, that in palsy the loss of sense and motion is only partial—that there is an absence of stertor and other signs of labouring respiration—that the pulse is less affected, not to advert to other peculiar and characteristic symptoms. Nor is it less easy for the most part, to distinguish the several species of palsy from each other. The real difficulty is to determine, in obscure cases, the source of the affection. In such an inquiry, we are to endeavour, in the first place, to ascertain whether it originates in the stomach, or the brain, or its dependencies. Being of a gastric nature, we shall generally have the same symptoms which denote this form of apoplexy before noticed. To discriminate the palsies of the several parts of the nervous system often proves exceedingly embarrassing, though by an attentive inquiry it may usually be done. But between the general and partial palsies there is so manifest a difference that we rarely experience any ambiguity. The latter may sometimes be traced to a visible cause—as the pressure of a tumour, or to some obvious disease of the nerve itself—and where there is an absence of those sensible signs, it is to be recognized by an entire exemption from all constitutional affections, as well of the mind as the body.

As regards hemiplegia, it may be affirmed, that if not of gastric, it is always of cerebral origin. This, however, does not hold as to paraplegia, which may arise, as before said, either from some affection of the spinal marrow, or of the brain itself. Most of the former cases are attended by some evident morbid derangement of the vertebræ, so as to render the point quite certain—and where it is otherwise, we may commonly arrive at a just conclusion by attending carefully to the history of the case. Having its seat in the brain, it is almost invariably preceded or accompanied by vertigo, gid-

diness, pain of the head, drowsiness, depraved vision, or a total loss of it, as in gutta serena, with a defect of memory, or some other of the intellectual faculties. Now and then numbness takes place in the fingers, or there is confirmed paralysis of one of the upper extremities, when all doubt ceases. Yet cases of paraplegia we have seen, without any indication of cerebral disorder, though really of this nature, and were only proved to be so by the results of the treatment.

In relation to the prognosis in palsy, we may state, that in the more violent and general attacks, entire recoveries are very seldom. Even as regards these, however, there are different degrees of danger. Commonly in proportion to the standing of the case, and still more if it be in an aged person, is the difficulty of cure. This may be received as a general proposition. But the particular nature of the case has also considerable influence on the result. Arising in the stomach, it will always prove more manageable, than when radicated in any part of the cerebral or nervous system, and especially if it be preceded by apoplexy. Of the several species of the disease, hemiplegia is the most formidable, as commonly originating in the brain. It is said by Boerhaave, that the affections of the upper are more dangerous than those of the lower extremities. All palsies, continues he, descending from superior to inferior parts are favourable, whereas, under opposite circumstances, or ascending from inferior to superior parts, the reverse, or unfavourable.* How far this is true we pretend not to know.

It is hardly necessary to observe that local palsies, except when they assail some important or vital organ, as the heart, the stomach, the bowels, the liver, &c. are the least to be regarded, and for the most part are cured. This, however, does not apply to the nerves of sense, as the optic, auditory, gustatory, &c. The affections thus produced, as amaurosis, deafness, &c. are both important, and very frequently prove unmanageable.

* Cooke, p. 127.

We have observed, that among the most favourable symptoms in palsy, is the retention or return of sensation, or even pain and swelling, with a natural warmth in the part, and a restoration of speech, if it has been suspended. The first feeling on a recurrence of sensibility, is generally that of formication, or the stinging of ants, or mere itching and heat. Coldness, insensibility, and especially withering of the limb, are all bad, and not less so are cold perspirations.

The terminations of palsy are various. Combined with apoplexy, it often proves fatal in a very short time, or runs such a course, as we have already described, in reference to that disease. In other instances, relief is speedily afforded, though on the whole recoveries very slowly take place. It sometimes happens, that on the very first operation of the remedies, there is so sensible an amendment, that we are led to expect a prompt and complete cure, in which we are disappointed—the case remaining stationary for months or years, and finally eventuating in apoplexy or in extreme emaciation and exhaustion. Thus every practitioner has seen individuals in this disease, so far recovered, as to be enabled even to go out and attend to business, with the entire loss of the motion of an upper or lower extremity, which is withered and decayed, or with one whole side much affected, who after a very long interval, have fallen victims to a second or third attack. The most melancholy, however, are what are called *bed-ridden cases*, where the patient with general palsy, will lie for many years, without scarcely a remnant of sense or motion, unable to stir, or to speak, or to feed himself, or retain his fæces, or urine—enfeebled in mind, or, perhaps, entirely extinct—he continues barely to vegetate, a burthen to himself, and his friends.

We have now arrived at the treatment. This divides itself according to the character of the case. We shall commence with that incident to, or consequent on cerebral and gastric apoplexy, and here we need scarcely observe, that in the early stage, it is precisely the same already enumerated in the history of that disease, and which it is unnecessary to recapitulate in detail—consisting of active eva-

cuations of every kind, including blood-letting, general and local, purging, vomiting, as the case may be—topical applications, as blisters, issues or setons—revellents, or irritating applications to the lower extremities—and finally a salivation.

Of the above remedies, the only one which seems not to meet with general approbation are emetics. Their utility, indeed, is much disputed, and though at different times recommended by eminent practitioners, the principles which should regulate the use of them are not well defined, or the cases to which they are appropriate, accurately designated. To do justice to this inquiry would lead us, had we the ability to settle so controverted a point, into a discussion far more copious than our present limits allow. We can only refer generally, to what we have said under the head of apoplexy. The facts and reasonings adduced, respecting their employment in that disease, apply with equal pertinency to palsy. It may, however, be proper to add, that the practice has lately been strongly enforced by Serres, and other distinguished French writers, who prescribe the tartarized antimony in very large doses, from the insensibility of the stomach in the disease. We would also, in closing this part of the subject, strongly insist on the vast importance of purging long, active, and persevering, to which, indeed, in our opinion, every other measure must be deemed merely subordinate and auxiliary.

When a case is to be traced to the spinal marrow, dependant on dislocation of the vertebræ from accident, or to the derangements of disease, it comes within the province of surgery, with which we have nothing to do. We cannot, however, forbear to mention, that the treatment of some of the latter cases by issues, so highly extolled by Mr. Pott, and so generally adopted, has lost ground, and is now comparatively little used. It was early condemned by Camper, and since by Baynton, and Armstrong, as well as many others. In this form of the disease, we know of no course of practice, which can at all compare in point of efficacy, with active and continued purging, even, in some instances, for months. We owe this improvement to Dr. Physick, whom we have seen conduct to

a successful termination, several cases of the kind, which seemed altogether irremediable, and which, we are quite sure, would have proved so, in most other hands.

But palsy nearly as often proceeds from irritation or inflammation of the spinal cord, and is followed by the same sort of sanguineous extravasations, or serous effusions, as happens in the brain itself. Cases of this description are to be managed, by the whole of the remedies already enumerated, some addressed more particularly to the topical affection—and above all, a state of rest is to be enjoined, without which, every thing else will be thwarted, and prove unavailing. These cases are commonly much misunderstood, and require for their detection, great vigilance and practical sagacity—and when properly treated, for the most part, may be cured. But to do this, the freest evacuations are required to be pursued.

Touching partial palsies, the practice is so analogous, that we have very little to say. Engaging in a case of this nature, we are at first to ascertain the cause. If it be occasioned by the pressure of a tumour, or any other circumstance, to be removed by an operation, it must be resigned to the resources of surgery. Dissection, however, shows us, that the nerves, in palsy, are often affected precisely as the brain, and spinal marrow, in the same disease. They take on irritation or inflammation, which leads to the ordinary result, effusions and extravasations with various changes of structure, so that they can no longer perform their functions. Caused by any of these conditions, the case is to be managed accordingly. We evacuate generally, and apply cups, or leeches, and blisters, to the part, and next frictions with mercurial ointment, to promote the absorption of extravasated fluids. We pass over the palsies of the nerves subservient to the senses, as gutta serena, &c. not properly appertaining to our province.

The measures in the early stage of palsy, have now been enumerated. But this being over, or when plethora or marks of determination to the head, and vascular action, irritation and inflammation have all subsided, the course of

proceeding is to be changed. The remedies hence forward, are chiefly stimulants, both internal and external, of the former of which, are the arnica montana, the rhus toxicodendron, cantharides, turpentine, guaiacum, garlick, horse-radish, mustard-seed, and above all the carbonate of ammonia. This last has often been productive of the greatest advantage, and the same may be affirmed of the mustard-seed, which, while proving a grateful stimulant, have the effect of preserving the bowels in a laxative state. By some practitioners the nervine, the antispasmodics, and even the narcotics are recommended, as camphor, ether, castor, musk, assafœtida and opium, &c. Of these remedies we know little. It is not easy to conceive a case to which they would be appropriate, though it is possible, that, after very free evacuations, they might prove a palliative in palsy, attended by restlessness and spasmodic or convulsive tendencies. The use of opium, however, in particular, is not uniformly thus qualified or restricted. By Kirkland, by Falconer, and by Heberden, we are expressly told, that it may be given with advantage and safety in all states of palsy, and that certain appearances which may seem to contra-indicate it, are fallacious.*

Within a few years much attention has been directed to the nux vomica in this disease. It had long been remarked, that this article, when largely given, sometimes induced a tetanic rigidity of the muscles. Being persuaded that this is a very constant effect, or one which at least may be commanded, Dr. Fouquier, of Paris, some years ago, conceived, that it might be applied to the cure of palsy, considering the latter disease to depend on an opposite or relaxed state of the muscular fibre. During the interval which has since elapsed, the medicine has been fully tried, and his own experience, as well as that of Dumeril, Majendie, Hebreard, Husson, Asselin, and other highly distinguished physicians, confirms the truth of the speculation, and the value of the practice.

Not long after the administration of the medicine, we

* Cooke, p. 181.

are told, that the tetanic condition takes place, which ought to be continued by the repetition of the dose, for a greater or less time, as the circumstances of the case may seem to demand. This state is represented as having all the characteristics of real tetanus, and may be partial, or universal, according to the force and extent of the impression made. What is very singular, it is declared, that, by a sort of elective affinity, the action of the medicine, when it is given in the proper dose, is directed to the affected limb, leaving all the sound parts untouched, and this is apt to take place in proportion as the limb is deprived of sensation and motion. Yet, however violent or general the tetanus may be, no danger results from it: the patient, on the contrary, is so little disturbed, that he often sinks into a sweet sleep.

To attain the precise effect which is desirable, it is recommended to exhibit four grains of the medicine in substance, or two grains of the alcoholic extract, several times in the day, watching with care the operations of each dose, that it may be duly regulated. But it is sometimes required very largely to increase the quantity, so much so, that in some cases thirty, or forty, or fifty grains of the powder have been given at a time.

What degree of credit is to be attached to this very extraordinary account we are unable to determine, having never employed the medicine, though we understand it has been done in our public institutions, in a few cases, and with little or no success. Yet we do not think that we should draw any conclusion against the practice from so imperfect an experiment, especially as it comes to us supported by some of the best authorities of Europe, and so confidently affirmed that there is scarcely room for doubt or deception. Even admitting that it was fairly tried in the cases to which we have just alluded, we may discover sources of failure, without impeaching its general value, or the credibility of those by whom it is reported. Paralysis is diversified by its causes as much as most diseases—and, while the more simple cases of it are easily managed, there are others, proceeding from some alteration of structure,

or mechanical pressure on the brain or its dependencies, which are placed beyond the reach of all our resources.

The external applications in the second stage of palsy, are blisters to the head and to the affected part, issues and setons—sinapisms as revellents—rubefacients of the most stimulating kind—moxa, the actual cautery—electricity and galvanism.

On the more common of these applications we shall make no comment—their use and adaptation being sufficiently understood. The moxa is an old remedy revived, and greatly extolled by Baron Larrey and other Parisian practitioners. We have never used it. It seems to us, however, to be only a painful mode of establishing an issue or drain. The same objections apply to the actual cautery, which is advised to be drawn along the spinal column, or to touch the head with it, as the case may exact. This is also an old remedy, mentioned by Prosper Alpinus as practised among the Egyptians. Concerning electricity and galvanism, we are nearly as ignorant of their effects. The former has occasionally been tried by us, and uniformly with disappointment. It was probably more confided in formerly than at present. Cavallo, who has written largely on it as a remedy in diseases, condemns it in palsy as useless or mischievous. The same report was made of it by Dr. Franklin, after a series of experiments, and such, we believe, with some few exceptions, is now the general estimate of its power.

To electricity has succeeded galvanism, and considering its great influence over the nerves, we ought to expect the most interesting results from it. But we do not find it much supported. Excepting Dr. Bardsley, in England, who appears to have tried it very extensively, and with considerable success, we have sought in vain, among those having experience with it, for evidence in its favour. By all it is admitted, that if these two agents are not productive of advantage in a few days, they should be abandoned.*

* Cooke, p. 161.

Among other expedients resorted to in order to arouse nervous excitement in palsy, has been the raising of strong mental emotions, and particularly anger and terror. Cases relieved by this means, are recorded by Schenkus, by Boerhaave, and by Van Swieten. The memorable story of the son of Cræsus, who instantly had his speech restored by a fright, as related by Herodotus, is sufficiently familiar. We know of a similar instance from an alarm by fire. But though admitting it to be sometimes successful, it is a very dangerous resource, and scarcely warrantable.

As a remedy far more important, we are next to mention the warm and cold bath. These have often been employed in the chronic states of palsy with good effect. The tepid waters of Buxton and Bath, in England, are habitually prescribed for this purpose, and our own of a similar kind, especially those of Virginia, are used with no less service. Cullen speaks well of the cold water suddenly applied, by immersion, or by having it dashed on, provided it is followed by a glow, and general re-action of the system—which may be promoted by frictions with the flesh-brush. Where there is mere debility of an arm, we have known the raising of a weight, gradually increased, daily, to have a very good effect in restoring muscular power.

This completes the treatment of the second and more advanced stages of palsy. The remedies are numerous, and being of a powerful nature, require to be prescribed with great judgment and discrimination. What we wish particularly to caution against is, the too early and unlimited employment of the stimulating and tonic measures. The disease we denominate palsy is, for the most part, one of *oppression*, and not of *debility* from *exhaustion*. Even in the chronic or protracted states of it, where great apparent weakness and attenuation of frame exist, we shall often find the pulse hard and corded, with other marks of the febrile movement, or low from depression. It will always be right, under such circumstances, to omit every species of stimulus, internal and external, and recur to evacuations, especially from the bowels, and by the most active of the

drastic articles. The elaterium is here one the best remedies which we have ever used. Copiously as it purges, we shall find, that instead of increasing debility, it will recruit strength by removing disease.

As regards the external applications, and especially frictions, we are quite sure they are greatly abused. As much as any thing whatever, are they detrimental in the least excited states of palsy, by increasing vascular action, and unduly determining blood to the affected parts. They should be reserved only for the torpid and subdued states of the disease. On the whole, we repose the highest confidence in the management of palsy, in nearly every state and form of the disease—on occasional bleeding, active purging, and ultimately a salivation*—being persuaded that these failing, we have little to expect from any thing else.

Like apoplexy, palsy is apt to return, and with^a a view to prevention, the same regimen and remedies are to be adopted in both cases. It is a very common, though a vulgar notion, not at all true, that the third stroke of either of these diseases must necessarily prove fatal^b. Yet one attack invites another, each one augments the danger, and an escape from a third, provided the preceding have been violent, rarely happens.

In closing our account of the work under review, we must once more press it on the attention of our readers, as the very best history of palsy with which we are acquainted, and, perhaps, that is extant.

* There is scarcely a case of palsy to which mercury, urged to this extent, is not appropriate. But it is pre-eminently so, when the disease proceeds from the influence of lead. The former, indeed, may be considered as the counter-agent of the impression of the latter mineral—and we are half inclined to believe, that their powers in this respect are reciprocal, or that lead equally counteracts, or subverts, the action of mercury.

MEDICAL AND PHILOSOPHICAL INTELLIGENCE.

ANATOMY AND PHYSIOLOGY.

Observations on the Effects produced by the Bile, in the process of Digestion. By B. C. BRODIE, Esq., F. R. S., &c. &c.—Various opinions have been entertained by physiologists respecting the office of the liver. Some have supposed that the secretion of bile is merely excrementitious; others, that the bile is intended to stimulate the intestine, and to produce a ready evacuation of the fæces; and another opinion has been, that the bile is poured out into the duodenum, that it may be blended with the chyme, and, by producing chemical changes in it, convert it into chyle. The situation of the liver, connected as it is in every instance with the upper part of the alimentary canal, is unfavourable to the first of these hypotheses; but the last is rendered very probable by the circumstance of chylication taking place just at the part where the bile flows into the bowel.

In order that I might arrive at some satisfactory conclusion on these points, I applied a ligature round the choledoch duct of an animal, so as completely to prevent the bile entering the intestine, and then noted the effects produced on the digestion of the food which the animal had swallowed, either immediately before or immediately after the operation. The experiment was repeated several times, and the results were uniform. Before I describe these results, it may be proper to make one further observation. The application of a ligature round the choledoch duct is easily accomplished, and with very little suffering to the animal; so that any derangement in the functions of the viscera, which follows, cannot reasonably be attributed to the mere operation. The division of the stomachic ropes, or terminations of the eighth pair of nerves on the cardia of the stomach, and the ligature of the whole extremity of the pancreas, are operations of much greater difficulty; yet it has been ascertained that neither of these at all interfere with the conversion of the food into chyme, or that of the chyme into chyle.

When an animal swallows solid food, the first change which it undergoes is that of solution in the stomach. In this state of solution it is denominated *chyme*. The appearance of the chyme

varies according to the nature of the food. For example, in the stomach of a cat the lean or muscular part of animal food is converted into a brown fluid, of the consistence of thin cream; while milk is first separated into its two constituent parts of coagulum and whey, the former of which is afterwards redissolved, and the whole converted into a fluid substance, with very minute portions of coagulum floating in it. Under ordinary circumstances, the chyme, as soon as it has entered the duodenum, assumes the character of *chyle*. The latter is seen mixed with excrementitious matter in the intestine; and in its pure state ascending the lacteal vessels. Nothing like chyle is ever found in the stomach; and Dr. Prout, whose attention has been much directed to the chemical examination of these fluids, has ascertained that albumen, which is the principal component part of chyle, is never to be discovered higher than the pylorus. Now, in my experiments, which were made chiefly on young cats, where a ligature had been applied so as to obstruct the choledoch duct, the first of these processes, namely, the production of chyme in the stomach, took place as usual; but the second, namely, the conversion of the chyme into chyle, was invariably and completely interrupted. Not the smallest trace of chyle was perceptible either in the intestines or in the lacteals. The former contained a semi-fluid substance, resembling the chyme found in the stomach, with this difference, however, that it became of a thicker consistence in proportion as it was at a greater distance from the stomach: and that, as it approached the termination of the ileum in the cæcum, the fluid part of it had altogether disappeared, and there remained only a solid substance, differing in appearance from ordinary fæces. The lacteals contained a transparent fluid, which I suppose to have consisted partly of lymph, partly of the more fluid part of the chyme, which had become absorbed.

I conceive that these experiments are sufficient to prove that the office of the bile is to change the nutritious part of the chyme into chyle, and to separate from it the excrementitious matter. An observation will here occur to the physiologist. If the bile be of so much importance in the animal economy, how is it that persons occasionally live for a considerable time, in whom the flow of bile into the duodenum is interrupted? On this point it may be remarked, 1st, That it seldom happens that the obstruction of the choledoch duct from disease is so complete as to prevent the passage of the bile altogether; and the circumstance of the evacuations being of a white colour, may prove the deficiency, but does not prove the total absence of bile. 2dly, That in a very few authenticated cases, which have occurred, of total obliteration of the choledoch duct in the human subject, there has been, I believe, always extreme emaciation,

showing that the function of nutrition was not properly performed. 3dly, That the fact of individuals having occasionally lived for a few weeks or months under these circumstances only proves that nutrition may take place to some extent without chyle being formed. In my experiments I found that the more fluid parts of the chyme had been absorbed, and probably this would have been sufficient to maintain life during a limited period of time.

In the prosecution of this inquiry, a circumstance occurred, which seems not unworthy of notice, although not immediately connected with the subject of digestion. The ligature applied round the choledoch duct was always a single silk thread, the ends of which were cut off close to the knot. If the animal was allowed to live, he became jaundiced. The *tunicæ conjunctivæ* of the eyes were tinged with bile, and bile was seen in the urine. But at the end of seven or eight days, I found, in several instances, that an effort was made by nature to repair the injury done by the operation, and to restore the passage of the bile into the intestine. In these instances, on destroying the animal at the end of the above mentioned period, and exposing the cavity of the abdomen, and then making an opening into the duodenum, I ascertained that on compressing the gall bladder the bile flowed out of the orifice of the choledoch duct in a full stream, in spite of the ligature. On further dissection, I found that a mass of albumen, (coagulable lymph,) had been effused, adhering to the choledoch duct above and below the ligature, and to the neighbouring parts, and enclosing a cavity in which the ligature was contained. The pressure of the latter had caused the duct to ulcerate, without adhesion having taken place of the surfaces which had been brought into contact; and the ligature, having been separated from it by ulceration, lay loose in the cavity formed by the albumen which had been effused around it. Into this cavity the bile might be made to flow from the upper orifice, and out of it into the lower orifice of the choledoch duct; and thus the continuity of the canal intended for the passage of the bile was restored. It is still more remarkable that the same thing happened even when two ligatures had been applied on the choledoch duct at some distance from each other.

The physiologist will not fail to observe the difference between the effects produced by a ligature applied to an excretory tube and a ligature applied to an artery or vein. A circumstance nearly corresponding to that which I have now mentioned, has been noticed by Mr. Travers, respecting the consequences which follow the application of a ligature round the intestine.*

* See an inquiry respecting the Process of Nature in repairing Injuries of the Intestines. By B. Travers. London, 1812.

MORBID ANATOMY.

Dr. JOHN DAVY on *Adhesions of Coagulable Lymph*.—On injecting brandy between the lungs and pleura of a dog, firm and long adhesions were formed in twenty-four hours. This is against the received doctrine of adhesions being weak in proportion to their recentness. When blood is drawn, its albumen is liquid, but soon becomes viscid, and at length solid. When in its viscid state, it may be drawn out into transparent fibres, and bands which soon become opaque and solid, and attain their maximum of strength in a few hours. This furnishes a key to the natural history of adhesions. Dr. Baillie has committed a mistake on this point in his *Morbid Anatomy*, chap. i.—*Phil. Trans.*

Case of Perforation of the Œsophagus.—A woman, aged twenty-two, was admitted at La Pitié, on the 31st of January, 1823. She had been put to bed a few days before at the Maternité, where she was affected with puerperal peritonitis, for which thirty leeches had been applied. She was but imperfectly recovered when she left the Lying-in Hospital; and, after some days, applied at La Pitié under the following symptoms:—The face pale and anxious; the skin dry; the pulse small, frequent, and contracted; the abdomen slightly distended, and painful. The patient augured very unfavourably of the result.—February 1st. Thirty leeches were applied to the belly, and a simple tisane administered.—2d. The patient had frequent vomiting: twenty leeches were applied, and an anti-emetic mixture. The vomiting ceased, and she appeared better. At two o'clock, she was agitated in consequence of a visit from some of her friends, and the receipt of a letter from her lover: the visitors had scarcely left her, when she expired.

The body was opened thirty-six hours after death. In the external appearance there was nothing worthy of remark, except some distention of the abdomen, which was filled with a considerable quantity of purulent serosity, with albuminous flocculi. Slight adhesions existed between the intestines and the abdominal peritoneum. The stomach and intestines were empty, and white internally. The uterus had still the size of a large pear, containing some clots of blood and having the vascular orifices still open. On opening the chest, both cavities were found filled with a dark brown fluid; and, at the distance of three lines from the cardia, the posterior part of the œsophagus was perceived to be completely destroyed, to the extent of four fingers' breadth: nothing remained of this portion but some black sphacelated shreds. The gangrene pervaded the mucous membrane for two inches further upwards, but without involving the other textures. The pneumo-gastric nerve was seen

white and isolated, in the midst of the parts destroyed. The liquid which had escaped into the thorax contained a worm, of the genus *lumbricus*, four inches long. No symptoms had led to the suspicion of this extensive destruction of the œsophagus.—*Revue Medicale*, Fevrier.

SURGERY.

M. RENAUD's Case of Gastrotomy.—A young man accidentally swallowed a silver fork, eight inches in length, in consequence of which the most threatening symptoms ensued, and the greatest alarm was entertained. Mr Renaud, an able surgeon at Romans, (department of the Drôme,) with a view to afford the only assistance in his power to the patient, undertook the operation of gastrotomy; which he performed in presence of several physicians of the faculty of medicine of Paris and Montpellier, and succeeded, with much dexterity, in extracting the fork. The young man is considered out of danger, and was expected to recover in a short time.—*Tablettes Universelles*.

Case in which a foreign body remained seven years in the Trachea.—The following case we copy from the Quarterly Journal of Foreign Medicine for April.

In 1821, a young man, aged seventeen, applied to Walther, affected with phthisis, from the claw of a 'craw-fish' which he had swallowed in 1811, and which had got into the trachea, and remained in the right bronchia, occasioning violent convulsions, coughing, and hæmoptysis. Oil of sweet almonds, followed by opiates, purgatives, assafoetida, and corrosive sublimate, eased the cough; and he thought as he became easier, that the claw must have been removed. There remained, however, phthisis, which was followed by cramps, which did not yield to bathing. Up to 1814, he expectorated pus, and had repeated feverish attacks, in spite of pitch-vapour baths and Dover's powder. He had subsequently a brain-fever, strong convulsions, chorea, strabismus, and somnambulism. Some time after he was seized with an irresistible desire to bite, and when he could nothing else, he bit his own hands. He afterwards had distressing optical illusions, and could not look on any thing black without screaming. He lost the sense of taste, and it was painful for him to utter a sentence. His limbs were then paralysed; and he took a great passion for cutting and piercing instruments, and, when alone, he cut and stabbed himself. Sometimes he sought to strangle himself; but, after the excess of the furious fit was over, he complained of great fatigue, and of uncommon pains. For two years he amused himself like an infant, during all which time the cough and expectoration continued. After a

time his paralysis was partly removed again, and he began to walk and to try medicines, all of which he had given up. Every thing was tried,—blisters, anthelmintics, camphor, musk, bark, calomel, aloes, hellebore, laurel water, iron, zinc, &c. and all without success. In 1815, his nervous symptoms returned during winter, and disappeared again without medicine in spring. In autumn they again returned, more violently than ever, and his expectoration contracted a very remarkable fœtor. He bruised every thing he could come at, and had a strong propensity to leap out of the window, which he once accomplished from the first floor. His appetite was gone, and his bowels torpid. In January, 1816, he lost his voice, his sight and his hearing; but these he recovered in the succeeding summer; and, the year following, the same circumstances occurred. In 1818, he lost his appetite, and could only take bread, honey, and coffee. Medicines were again tried, with no avail.

On the 27th of April, 1818, after a violent coughing for several days, he brought up the claw of the craw-fish, with a great quantity of pus; and this put him in great hopes of a cure. In 1819, he had a quotidian fever, which was subdued by bark, myrrh, and acetate of lead. In 1820, he took no medicine. During the winter of 1821, he complained of pains in his side, and spit up blood. He tried the vapour of tar and sulphur: the expectoration ceased, he recovered his health, and can now attend to his business.—*Grafe and Walther's Journ. der Chir. und Augenheil.*

Cases of Inverted Uterus successfully treated by Ligature. By CHARLES JOHNSON, M. D.—Mrs. M. æt. 50, in July, 1820, came to the vicinity of Dublin, for the benefit of sea-bathing. From the birth of her first child, fourteen months before, she had been subject to constant mucous discharges from the vagina tinged with blood, and to profuse and frequent recurrence of the catamenia, often, especially after exertion, amounting to uterine hemorrhage. In consequence of these discharges, she was reduced to a state of great debility, which was farther increased by night sweats and diarrhœa: her lips and cheeks were perfectly pale, and she was emaciated in the last degree. There had been considerable difficulty in bringing away the placenta. On examination per vaginam, a tumour was found in the vagina of the size and shape of a pear. Dr. Clarke was called in consultation, and it was agreed that this tumour was polypus uteri, and that the ligature ought to be applied. The ligature when applied produced so much pain, that a second examination was made, when it was ascertained that the tumour was the uterus partially inverted. For the patient's safety it was indispensable to do something to check the discharge; the ligature was

continued and cautiously tightened, so that at the end of three weeks the tumour came away, and was found to consist of the fundus uteri and fallopian tubes. The patient's health now amended rapidly, and at the end of year natural menstruation was established.

The other case, that of Mrs. B. æt. 27, was every way similar; great debility and œdema of the lower extremities had taken place. There was also in this case, enlargement of the left ovary. The ligature was applied on the 19th of November, 1816, and on tightening it on the 20th, retention of urine, and considerable uneasiness, were the consequence. Feverishness supervening, the ligature was obliged to be removed entirely for a time, but it was hoped, as the discharge had become putrid, that the vessels had undergone sufficient pressure to prevent the recurrence of hemorrhage. This hope proved fallacious. In three weeks the hemorrhage returned, and the ligature was again applied. Jan. 2.—Considerable fever, headache and restlessness, but no pain or tenderness in the belly. She had purgative medicines, and an anodyne at bed-time, and on the 3d she was free from the feverishness. On the 12th, the canula came away, and the tumour, which proved to be the fundus uteri, and fallopian tubes, was found lying in the vagina. In a month she could walk abroad, the discharge had entirely ceased, and she was regaining strength rapidly. The portion of the uterus which was removed in the first case, is preserved in the museum of the College of Surgeons.

It was long thought, that this was a complaint which could admit of palliation only. Dr. Denman says, "All that art can do is to alleviate their sufferings, to moderate symptoms, and sometimes to support the perpending uterus, by means of a flat pessary." M. A. Petit, of the Hotel-Dieu, Lyons, mentions a case, where an eminent surgeon passed a ligature round an inverted uterus of three years duration, thinking it was a polypus, and by that means rescued the woman from the lingering death which threatened her. In all cases in which this treatment has been since adopted, it has proved successful. It is even of consequence to know that the hemorrhage from inverted uterus may be restrained by means of the ligature, a fact ascertained by Dr. Clarke, of Dublin, as early as 1803.—*Dublin Hospital Reports, Vol. III.*

New Method of performing the Operation of Lithotomy in the Female, by Dr. Lisfranc.—The patient, in this operation, is placed in the usual position, and a common catheter is passed into the bladder. Its convexity is then turned upwards; the handle is given to an assistant, who, pressing lightly from above downwards, depresses the urethra and vagina. The part to be

operated upon is that space lying between the urethra and the symphysis of the pubis. The surgeon having ascertained the position of the two rami of the os pubis and of the clitoris, passes his finger into the vagina, in order to ascertain the course of the pudic artery, which is occasionally irregular. The operator then taking a common bistoury, and holding it like a writing-pen, makes a semilunar incision, (the convexity being upwards,) marking with his left hand the spot where the incision should begin and end. It is to begin on a level with the right side of the meatus urinarius, one line distant from that branch of the pubis, and is carried to the same point on the other side. It is recommended to cut the cellular tissue layer by layer. It is extremely important not to make such a degree of pressure on the anterior surface of the bladder as to detach it from the pubis. The surgeon having reached the anterior and inferior part of the bladder, may open it transversely, after having passed his bistoury into the cavity; but, if the thumb and the forefinger of the left hand are introduced, (the first into the vagina and the second into the wound,) and the parts between are a little stretched, the bladder will become tense, he draws a little forwards, and the transverse incision will be more readily and easily made. Repeated experience, it is said, has proved that there is no danger, in following this method, of wounding either the urethra or the pudic arteries; and it is impossible to injure the vagina. It is to be observed, that there is less danger of hemorrhage from a wound in the body of the bladder, than in its neck. The wound made by this operation is capable of greater extension than that made in the ordinary manner, and, consequently, is more advantageous for extracting large calculi. The infiltration of the urine appears to be impossible, for the following reasons: 1st, because the bladder is situated higher in the woman than in man; 2dly, because the cellular membrane between the bladder and pubis is fine, elastic, and in small quantity; 3dly, because the shortness, breadth and position of the urethra favour the escape of the urine by the natural passage. Inflammation of the bladder or peritoneum are not, of course, more to be feared in this than in the common mode of performing the operation.—*Journal Universel*, Fevrier 1823.

Case of Trepan.—On the 1st of February last, M. Dupuytren performed the operation of trepan upon a patient in the Hotel Dieu at Paris, under very peculiar circumstances. The patient, a young man, had two years before received a stroke with a pointed knife, over the upper and back part of the right parietal bone. For this wound he was admitted into the Hotel Dieu: it soon healed. The patient, for a long time after, experienced no

bad symptoms; when at length a tumour appeared upon the spot where the blow had been inflicted. This tumour suppurated and burst, and a piece of the point of the knife, an inch and a half in length, was discharged through the wound, two months and a half before the date of the operation. M. Dupuytren was of opinion that the knife must have penetrated through the bone into the substance of the brain. The discharge of pus soon ceased; the opening closed entirely; but the patient began to complain of pain in the head, to experience from time to time rigors, and irregular feverish fits; for which leeches behind the ears, laxatives, pediluvia, &c. were prescribed. These symptoms continued to increase in severity; the patient was struck with total palsy of the left side, and with occasional convulsion of the muscles of the right: in fine, he lost the powers of speech, sensation and intelligence, and lay in a state of profound stupor, with low stertorous breathing, and with a slow (and what M. Dupuytren considered a feeble) pulse. Taking all the circumstances into account, there could be no doubt that the symptoms depended upon compression of the brain; and, as M. Dupuytren believed, from a collection of pus between the dura mater and the cranium. The trephine, with the expectation of finding matter here, was accordingly applied in the situation of the wound, and a circular portion of bone removed; and the surprise of the surgeon may be conceived, when the dura mater was considered to be quite healthy. Observing, however, that it projected into the wound, M. Dupuytren cut through the dura mater; but he observed nothing unnatural in the state of the brain below. A bistoury was then plunged, to the depth of more than an inch, into the substance of the brain itself, and by this opening an ounce and a half of pus was discharged. The patient, who had not complained during the incisions of the scalp, now complained loudly of pain in the wounded parts: he spoke distinctly, and answered with accuracy the questions put to him; and the paralysis was so much relieved, that he moved his limbs at will, and stretched out the paralytic arm to M. Dupuytren, when he was leaving him. For more than forty-eight hours after the operation, the patient continued to do well, no symptom appearing either of inflammation or compression of the brain. All of a sudden, however, he fell into violent convulsions, which ended in death in about two hours. The brain was inspected the second day after, and no marks of inflammation of the membranes, or of the brain itself, were discovered. There was a small quantity of pus in the cavity of the abscesses, but not enough to produce any degree of compression.

—*Quarterly Journal of Foreign Medicine*, April.

THEORY AND PRACTICE OF MEDICINE AND MATERIA MEDICA.

Curious Affection of the Heart.—Dr. Fisher, of Hildburghausen, relates a case of disease of the heart, in which both the patient himself and also the by-standers, among whom was a physician, could distinctly hear the beating of that organ for six or eight weeks previous to death. They were not only sensible of the noise in the region of the heart, but, on feeling the pulse at the same time, it was observed the pulsations were simultaneous with it. This noise had a great resemblance to the croaking of a frog, and it could be heard easily at the distance of five or six paces from the patient.

On examination after death, the auriculum dextrum and the vena cava ascendens were found dilated to a considerable size. The right ventricle contained a firm polypus, of about an inch in breadth; one division of which protruded into the auriculum dextrum, the other into the arteria pulmonalis.—*Medicinisches Chirurgische Zeitung.*

Croup cured by Sulphate of Copper.—Dr. H. Hoffman recommends cuprum sulphuretum as an excellent remedy in croup, especially after blood-letting. In slight cases, he begins with giving from one quarter to one half a grain every two hours. In those cases, however, where there is also laryngitis or bronchitis, three, four, or more grains are administered, so as to excite instant vomiting: by so doing, the doctor thinks that not only the lymph is expelled from the trachea, but also that the further secretion of it is prevented, so that the patient is very much relieved, and soon cured. After copious vomiting has been produced, the medicine is to be given in small doses, in conjunction with digitalis. In support of the utility of the above practice, Dr. H. affirms that he has employed it with the greatest success during a period of ten years, in a great number of children affected with croup, without ever having lost a patient in that time; notwithstanding the disease was often at its height when he was first called in.—*Hufeland's Journal.*

Experiments relative to Yellow Fever, performed by M. Guyon, at Fort-Royal, Martinique.

1. June 18th, 1822, he took the shirt of a soldier affected with yellow fever, which was completely soaked (*toute imbibée*) in the sweat of the patient, put it on immediately, and wore it for twenty-four hours. At the same time he was inoculated in both arms, by Mr. Cuppé, surgeon of marines, with the yellow matter, from blisters in a state of suppuration.

2. June 30th, M. Guyon drank a small glass holding about

two ounces of the *black vomit*; and afterwards, having rubbed both arms with the same matter, was inoculated with it by M. Cuppé.

3. July 1st. A patient having died of yellow fever on the fifth day of the disease, M. Guyon put on his shirt, impregnated with black matter still warm, and immediately went into the bed of the deceased, which was soiled with various excrements. He remained six hours and a half, sweated, and slept in it, in presence of many witnesses.

4. July 2. The patient who had afforded the opportunity of making the first experiment having died, his body was opened. The stomach contained a pretty large quantity of black matter, of a bloody appearance; and the internal membrane was red and inflamed. M. Guyon was again inoculated in both arms with this matter, and the punctures were covered with portions of the diseased stomach. The applications were removed twenty-four hours after: the inoculated parts were inflamed and painful, and the axillary glands somewhat tumefied.

M. Guyon enjoyed uninterrupted health during the performance of these experiments, which took place before numerous witnesses, and the authenticity of which is guaranteed by the signature of M. Donzelot, lieutenant general and governor.—*Revue Medicale*, Fevrier.

Remarkable Fact relative to the non-Contagion of the Yellow Fever.—A young Englishman, who arrived at St. Thomas's the preceding year, with a young and beautiful countrywoman whom he had secretly married, was attacked by the yellow fever. When the disease was at its height, and the symptoms of inevitable death became apparent, the young woman, in despair, and determined not to survive the object of her affections, undressed herself *entirely*, and placed herself by the side of her dying husband in bed, embracing his body. She remained for ten hours in this situation, and was with difficulty removed after he had breathed his last. She did not experience the slightest symptoms of the disease.—*Revue Encyclopedique*, Jan.

Description of an improved Apparatus for the inhalation of Vapour in the Cure of Diseases. By JOHN GAIRDNER, M. D.—The inhaler which Dr. Gairdner recommends, from there being no exertion necessary in its use, consists of a tea-kettle partially filled with hot water, which is kept boiling by the flame of a spirit lamp placed under it. From the upper part of it a tube issues, which is connected with a longer tube, in such a way as to be capable of being bent at different angles, to suit

it to the position of the patient. The extremity of the long tube is wrapped with a piece of linen, to prevent the heated metal from burning the patient's lips. It is then received into his mouth, and he inhales into his lungs the steam generated by the boiling, mixed with a large quantity of air, which enters freely by perforations in the top of the kettle. The whole apparatus is constructed of tin, and may be made at a moderate price: the following directions are given to be observed in the use of it:—

“The lamp is to be taken out, and a quantity of hot water put into the kettle to warm it, and poured off again. The kettle is then to be filled about half full of water, quite boiling. If, in consequence of the neglect of these precautions, the temperature of the water is under the boiling point, the lamp will not have power to make it boil.”

“The issue of steam is regulated by the lamp, which, if properly trimmed, ought just to produce vapour of the requisite degree of heat. By shortening and compressing the wick, or by lengthening and dispersing it, the boiling may be repressed or accelerated, and the vapour received into the lungs rendered cooler or hotter according to circumstances. The extremity of the long tube must be well wrapped with linen before it is used, in such a way as not to obstruct the tube, while it defends the lips from the hot metal.”—*Edinburgh Medical and Surgical Journal*.

Dr. GÖDEN on the *Seat of Puerperal Fever*.—According to the observations and dissections of Dr. Göden, the most prominent morbid appearances in puerperal fever are seated in the serous membranes. He found that the phenomena were by no means confined to the peritoneum; but were obvious also in the pleura, the pericardium, the pia mater, and arachnoid. This, we think, is of considerable importance, if it be confirmed by subsequent observation; as it will assist us in accounting for many of the anomalous symptoms. We must confess, however, that we are somewhat sceptical as to this sweeping generalization.—*Hufeland's Journal der Heilkunde*.

Dr. GIMELLE on *Iodine in Leucorrhœa*.—Dr. Gimelle has used iodine with much advantage in the cure of leucorrhœa of long standing, proceeding as it does from some original irritation degenerated into a state of chronic disease. He employed a syrup of iodine in the dose of an ounce night and morning, and friction every evening with a drachm of iodurated ointment. In this practice attention must be had to the peculiar effects this medicine sometimes produces on the stomach, which are best ob-

viated by the use of acid drinks. The composition of these preparations of iodine is not mentioned.—*OMODEI, Annali.*

On the Vermifuge Properties of Samphire (Crithmum Maritimum). By Dr. LAVINI.—Dr. Lavini has published, in the twenty-fifth volume of the Memoirs of the Academy of Sciences of Turin, chemical and medical researches on the *crithmum maritimum*. He attributes to this plant very active vermifuge powers, especially in cases of the lumbrici. He prescribes internally either the expressed juice or its volatile oil, in the form of an *oleosaccharum*, given in a little water or in any other vehicle; and externally, a cataplasm of the bruised leaves laid upon the epigastric region, while the volatile oil is kept at the nostrils.

The different experiments of M. Lavini with this plant lead him to conclude:—1st, That, whenever it is to be used in medicine, its juice ought to be simply expressed, without heat, that it may not be deprived of its green, mucous, and aromatic matter, which appears to contain its active principle. 2d, That the hydrochlorates, the sulphates, the carbonates of the earths and potash, with the acetic acid and a small portion of silica, appear to be constituents of the plant. 3d, That it contains a free acetic acid and a peculiar extractive substance. 4th, That its distilled water produces no action on the animal economy. 5th, That the action of sulphuric acid converts its volatile oil into a substance resembling petroleum. 6th, That the hydrates of potassa and soda do not form soaps with its essential oil. 7th, That this oil is in many points analogous to petroleum; and 8th, That the plant seems to be an excellent vermifuge.—*Archives, Gen. Mars, 1823.*

Bronchocele. By J. B. AUSTIN, Esq.—Mr. Austin has made a comparative trial with the concentrated tincture of iodine, and the burnt sponge lozenges, in bronchocele. The patients were two sisters in the same family, and apparently in an equal degree affected. The iodine was more effectual than the sponge, and more speedy in reducing the thyroid tumour.—*Medical and Physical Journal.*

Diabetes Mellitus. By DR. HEINEKEN.—Dr. Heineken, of Madeira, has published a case of diabetes mellitus in our respected cotemporary, where the patient had fallen away from being robust to a state of great emaciation. He was passing eight or ten quarts of urine daily of a saccharine quality, and had the usual symptoms of diabetes. The following pills were ordered:—pulv. scammon. ℥j. pulv. opii. ℥j. hydr. submur. gr. v. ant. tart. gr. ij. To be made into twelve pills, one to be taken

three times a day. A warm bath every night—the chest, arms, and abdomen to be rubbed well with sweet oil every morning. The food to be entirely animal. This treatment, with little variation, was continued from the 3d of June, to the 17th of July, when it was noted that the patient perspires freely—that the urine is healthy—that the quantity is about three quarts daily. A nearly similar mode of treatment, however, was continued till the 8th of October, when he was considered as cured. The quantity of solid opium taken during the treatment was about six hundred grains; and during eight days of that time, he took fifteen grains daily.—*Medical Repository.*

Tetanus cured by Ol. Tereb. By B. HUTCHINSON, Esq.—Mr Hutchinson has stated a case, in a much respected cotemporary, of tetanus occurring without any evident cause, in a man long afflicted with epileptic attacks. He was a prisoner in the Nottinghamshire House of Correction. Mr. H. finding, on his visit one morning, that the patient presented most of the usual phenomena of tetanus, he abstracted thirty ounces of blood, and exhibited fifteen grains of calomel and two grains of opium. Next was administered a brisk purgative enema, containing one ounce of the oleum terebinthinæ, while a large blister was applied to the back. The enema taking no effect, half an ounce of the turpentine was ordered by the mouth every two hours. Next morning our author was agreeably surprized to find that the patient could open his mouth, and that the whole of the tetanic symptoms were dispersed. He had taken, in all, two ounces of the turpentine, which freely evacuated his bowels. We would hint our suspicion that the case was not one of real tetanus, from the great facility with which the symptoms gave way. However this may be, we have nothing to object to the mode of treatment employed.—*Med. and Phys. Journal.*

Vaccine Disease and Measles. By MR. S. GILDER.—We apprehend that the Hunterian dogma, respecting the incompatibility of two processes or constitutional diseases at the same time, is now nearly obsolete—at least, that the rule is far from being absolute and without exceptions. We have very lately seen two cases of chicken-pox (or it may have been modified small-pox, for the children had been vaccinated) co-existing with well marked measles. We are ready to admit, however, that it is sometimes exceedingly difficult to distinguish between eruptive diseases. Measles, and even scarlatina, will sometimes throw out a miliary, nay, a varioloid or pustular eruption, very puzzling and perplexing to the practitioner. The case before us was one of a child vaccinated in a house where the brothers had measles. On the third day from vaccination, the child itself

exhibited the morbillous eruption. On the fourth day the punctured arms showed that vaccination had taken—and, in short, both diseases went through the regular stages quietly and amicably together.—*Med. Chir. Transactions.*

Rheumatic Metastasis. By MR. ARMSTONG.—We have long been convinced, from attentive observation, that the system of detracting large quantities of blood in cases of acute rheumatism, is productive of more frequent metastasis from the extremities to internal organs than a more moderate mode of treatment. In the first place, acute rheumatism is not to be controlled by large and decisive bleedings like common inflammations in other strictures, as the lungs, &c. And in the second place, if we do quell the external inflammation suddenly by copious depletion, a retrocession to some weakened organ is but too apt to take place. Of this we have seen several instances. In the following case, however, the disease was extended rather than translated to the heart, as the latter organ became affected before the rheumatism left the joints. Indeed it appears that the disease kept possession of the original seat till the last.

On the 7th of November, a private soldier, young, slender form, and delicate complexion, was admitted into the regimental hospital of the foot-guard, labouring under acute rheumatism of the superior extremities, characterized by the usual symptoms, as violent pyrexia, full hard pulse, great thirst, furred tongue, and constipated bowels. Twenty-four ounces of blood from the arm in a full stream—a brisk cathartic—fever diet. 8th, No alleviation of symptoms. Again bled to twenty-four ounces, and a quarter of a grain of tartarized antimony to be taken every three hours. 9th, Symptoms a little milder, but still urgent. The antimonial continued, and twelve grains of Dover's powder to be taken at bed time. 10th, Cough—the pain in the joints, and the fever being still undiminished. A brisk cathartic of calomel and colocynth. 11th, To the cough was added pain in the region of the heart. He was again bled, and the tartarized antimony continued. 12th, The heart and arteries evinced great action, and forty ounces of blood were abstracted without producing syncope or making much impression on the pulse. Antimonials continued. 13th, Cough and pain in the region of the heart increased. Digitalis added to the antimony. On the evening of this day, for the first time, thirty-six leeches were applied to the region of the heart, and the digitalis increased. 14th, He died. On dissection the heart was found enlarged in size, and the surface every where covered with coagulable lymph.

We would hazard a remark or two on the above case. We think local bleeding was not employed early enough when the

thoracic inflammation became developed, and we do not observe that blisters were employed at all. In the second place we conceive, (from witnessing such things on similar occasions,) that there was time to introduce mercury sufficiently into the system, after the sanguineous depletion, so to have arrested the inflammation not only of the joints but of the heart.*—*Medical and Physical Journal*.

Abdominal Tumour. By MR. WARD.—Tumours in the abdomen often puzzle the most able anatomists—the most experienced pathologists. The more facts and post mortem examinations we can collect, the more capable shall we be of giving a probable prognosis in such cases.

A man, thirty-one years of age, was admitted into the St. Giles's Infirmary, in October 1822, having a tumour of considerable magnitude in the right side of the abdomen, attended with pain and vomiting, extreme emaciation, and hectic symptoms. He had been only five months ill, his first complaints being pain about the navel, with vomiting of dark-coloured substances, and black alvine discharges. In a month he discovered a small tumour in the right side of the abdomen, which gradually increased, together with the other symptoms. After his admission, the size of the tumour progressively advanced, and eventually occupied nearly the whole of the umbilical, iliac, and hypogastric regions. It was extremely hard, and somewhat irregular, but unattended with pain on pressure. His strength and flesh declined, and about three weeks before dissolution he was harassed with a distressing diarrhœa.

Dissection. The peritoneum lining the abdominal muscles was found remarkably thickened, (the thickening varying from one and a half to two inches,) by a substance somewhat resembling fat, but much more firm. On exposing the intestines, an appearance presented itself, which at first seemed difficult to unravel: on more minute examination, however, it was evident that the tumour was formed by the same thickening or organized deposition already described, and which extended more or less over the *whole surface* of the peritoneum. The parts more immediately forming the tumour, were the lower portion of the ileum and ascending colon, which, having become agglutinated by coagulated lymph, formed an immense and compact mass. On the anterior part of this tumour was an opening formed by ulceration, through which a large quantity of matter had escaped into the cavity of the abdomen, which, in all probability, was the immediate cause of death. On following the course of the

* Our present number contains a case, which strongly illustrates the tendency to metastasis in rheumatism.

outer opening, a cavity was laid open, occupying its central part, and extending about eight inches from side to side, through which all excremental matter must have passed for some time previous to death, the structure of the intestines being at this part totally destroyed by ulceration; consequently, there were four openings communicating with the cavity formed by the ascending colon on one side, and the inferior part of the ileum on the other. The intestines through the greater part of their course were considerably constricted. The ureter and pelvis of the right kidney were greatly distended with urine. The lungs were free from tubercles, and appeared perfectly healthy. The remaining viscera were natural."

The above case, in its early stage, was mistaken for aneurism—a mistake which we have often seen committed.*—*Medical Repository.*

CHEMISTRY AND PHARMACY.

On the Preparation of the Hydriodates of Potass—simple and ioduretted. By BAUP, Pharmacien at Vevey.—One part of iodine and three or four parts of water are to be introduced into a phial or matrass; at intervals, and by little and little, an excess of pure iron filings (half part, for example) is to be added. The combination takes place immediately: much heat is disengaged; the iodine disappears, and the liquid becomes of a deep red. During this lively reaction, an ioduretted hydriodate is formed, which only requires to be slightly warmed, and to be shaken for a moment, whilst still warm, in order to be converted into simple hydriodate of iron. The action is known to be terminated by the almost total absence of colour in the liquid, but more surely when white paper is no longer stained red by it. The liquor is to be filtered, and some parts of water added; it is then to be raised on a sand-bath, in a flask or matrass, to nearly the boiling point, when the iron must be precipitated by means of the pure carbonate or subcarbonate of potass. This part of the operation requires some attention, less an excess of potass be added, which may, however, be separated by repeated crystallization, or be saturated with the hydriodic acid. After having filtered it, in order to separate the ferruginous deposit, and having well washed it, we proceed to the evaporation of the filtered liquor. The salt may be made to crystallize, either by cooling down, or by evaporation: in the latter case, the concentrated solution of hydriodate of potass is to be placed, not upon a stove, because the salt would concrete on the sides of

* A case in which the same mistake was committed, is contained in our present number.

the vessel, and in the end would be deprived of liquid; but on a very gentle fire, where the edges of the vessel, being cooler than the bottom, may condense a little of the vapour which rises up, and thus prevent the ascension of the salt. By degrees, crystals are deposited; when these fill almost the whole of the space occupied by the liquid, it must be suffered to cool; the other water is then to be poured off, which must afterwards be evaporated, for the purpose of obtaining more salt: finally, the crystals are to be entirely dried, either at a stove or fire, where they undergo a slight decrepitation. If it be wished to obtain the salt in a perfectly pure state, it must be subjected to repeated crystallizations.

The solution of *ioduretted hydriodate of potass* M. Baup recommends to be made of two parts of hydriodate of potass, formed after the formula just given, one part of iodine, and twenty-seven of water.—*Journal de Pharmacie et des Sciences Accessoires*.

Dobereiner's Apparatus for making Extracts.—This apparatus serves to extract, by means of water, alcohol, or ether, the soluble substances from any substance to be analyzed, in quantities from ten up to 200 grains. It is composed of a tube of glass, from four to nine lines in diameter, and from four to nine inches long. The tube is closed below by a cork, to which is adapted a small tube open at both ends. This, except that its upper extremity is covered with a piece of muslin, communicates with the large tube. The substance to be operated upon is put into the large tube, about half filling it, and the solvent is then put in over it. A small glass bulb, proportionate in size to the quantity of solvent used, is then emptied of air by heating a few drops of alcohol in it, and immediately attached by a tight cork to the lower end of the small tube. The whole apparatus is then set aside in a cool place: as the alcohol vapour condenses, a vacuum is produced, and the pressure of the air in the large tube forces the fluid through the substance to be operated upon in the bulb. In a few minutes the extraction is complete; the bulb is then removed, its contents taken out, the air in it again displaced, and the operation repeated: or, if necessary, the fluid is left in contact with the substance some time before it is made to pass from it into the bulb.—*Jour. of Science*, from the *Bib. Univ.* xxi. 188.

On the Preparation of the Acetate of Morphia. By FREDERICK JOYCE, Chemist.—Having lately seen much benefit derived in substituting the acetate of morphia for the tinctura opii of the London Pharmacopœia, and as I think it would prove of considerable utility, if generally adopted, I am induced to state the

following mode of preparation, which, from several experiments I have lately made, I find to be the most economical, and to answer sufficiently every purpose of a more expensive process.

Five ounces of good dry opium, broken small, are to be put into a covered vessel with from one quart to three pints of water, and gently boiled until the whole of the soluble matter appears to be taken up. Pass it while still hot through a fine strainer, and, having poured a small quantity of boiling water on the residue, and having strained and mixed the liquors, add so much calcined magnesia that, when boiled for a few minutes, the supernatant liquor shall have entirely lost its bitter taste; the whole is then to be poured on a filter, and the magnesian precipitate collected and dried, which having been put into a retort, pour upon it one quart of alcohol, and apply a gentle heat to bring it to ebullition, at which state it may be of advantage to keep it for a few minutes, in order to entirely dissolve every portion of the morphia. The solution is now to be passed, as quickly as possible, through a filter, the residue is to be washed with a little hot alcohol, and the filtered liquors are to be mixed; return them into a clean retort, and draw off about one half of the spirit. The contents of the retort are now suffered to cool, when the greater part of the morphia (perfectly pure, with the exception of colouring matter) will be found crystallized on the bottom and sides of the glass. Acetic acid, to saturation, being now added, the process is to be finished with a sufficient quantity of distilled water to make exactly one quart.

It will be seen, by turning to the Pharmacopœia, that, in this formula, the quantity of opium is doubled. It is, however, of no consequence, as the medical practitioner can, at any time, add either distilled water or proof spirit, and by that means bring it to the strength ordered by the college. In either of these states it would be found to possess every advantage that is derived from opium, without producing the disagreeable headache generally attending the use of the common laudanum.

As this method may be objected to as not making a perfectly pure acetate, the colouring may be removed by re-crystalling the morphia previous to its solution in acetic acid, or afterwards by the use of well-burnt animal charcoal, previously digested in muriatic acid: but as the loss in strength by either of these methods is often considerable, and colour in medicine being of very little moment, this additional purification would, in general, be found an evil. It is also, perhaps, necessary to observe, that whenever a solution of morphia in alcohol is to be filtered, it should be kept warm; otherwise the salt deposits on the filter, and the product is lost. The method I find to answer best, is to have a double copper funnel connected at the

pipe, and the space between the two filled with boiling water. In this manner the whole of the fluid in the inner funnel is kept hot until it has passed through the filter; it is also furnished with a cover, which fits air-tight, in the middle of which is inserted a long-necked funnel, which reaches nearly to the bottom of the filter, and by which means it is re-filled without removing the cover. This little apparatus is extremely useful for solutions in ether, the outer space being in this case filled with a freezing mixture.—*London Medical Repository.*

Condensation of the Gases.—Mr. Faraday has succeeded in condensing chlorine into a liquid. For this purpose a portion of the solid and dried hydrate of chlorine is put into a small bent tube, and hermetically sealed: it is then heated to about 100, and a yellow vapour is formed, which condenses into a deep-yellow liquid heavier than water, (sp. gr. probably about 1.3.) Upon relieving the pressure by breaking the tube, the condensed chlorine instantly assumes its usual state of gas or vapour.

When perfectly dry, chlorine is condensed into a tube by means of a syringe; a portion of it assumes the liquid form under a pressure equal to that of three or four atmospheres.

By putting some muriate of ammonia and sulphuric acid into the opposite ends of a bent glass tube, sealing it hermetically, and then suffering the acid to run upon the salt, muriatic acid is generated under such pressure as causes it to assume the liquid form: it is of an orange colour, lighter than sulphuric acid, and instantly assumes the gaseous state when the pressure is removed.

By pursuing this mode of experimenting, sulphureted hydrogen, sulphurous acid, carbonic acid, cyanogen, euchlorine, and nitrous oxide, have been also found to assume the liquid form under pressure, and to appear as limpid and highly mobile fluids. It is probable that other gases may be condensed by similar means, and that nitrogen, oxygen, and even hydrogen itself may yield, provided sufficient pressure can be commanded. Some of Mr. Perkins's experiments render it more than probable that atmospheric air, under a pressure of some hundred atmospheres, changes its form; and it is not unlikely that some very curious and interesting results may be obtained by the aid of a slight modification of the apparatus used by that gentleman, in his researches connected with high-pressure steam.—*Journal of Science.*

On the Absorption and Exhalation of Azote during Respiration.—Dr. Edwards, who is well known as an intelligent physiologist, concludes, from different experiments, and from the

circumstance of the opposite results which they give, some indicating a diminution of the azote of the air, others an increase of it during respiration, that this gas is absorbed into the circulation, and afterwards discharged from it; and that each of these actions is regulated by the constitution, habit, and circumstances of the individual, and by the influences to which he may be subjected, the absorption being to a small extent, while the exhalation is considerable, and *vice versâ*. This subject will come under a fuller consideration in our next proemium.—*Journal de Phys.* Jan. 1823.

Combination of Alcohol with Oil of Turpentine.—M. Vauquelin has found, that if one hundred parts, in volume, of volatile oil of turpentine, and twenty parts of alcohol, are mixed together, they are not separable by rest, but form a homogeneous body, an effect which arises from a solution of the alcohol in the oil. This compound does not become turbid by the addition of water.—*Ann de Chim.*

Castor Oil.—The processes generally employed for the extraction of the oil from the seeds of the ricinus, are by boiling in water and by expression. The former is expensive, from the quantity of fuel it requires, and affords but a small proportion of oil, which becomes in some degree empyreumatic, from the heat necessary to separate the mucilage. By the second, a milder oil is obtained, it is true, but it is extracted with difficulty, from its viscosity and the great quantity of mucilage which accompanies it. These difficulties are overcome by the following process, founded on the property possessed by alcohol of dissolving the oil, and separating the mucilage. It consists in mixing the seeds, deprived of their rind, and beat into a paste with a certain quantity of alcohol, (four ounces to the pound,) at 36° (of the centigrade thermometer;) this mixture is subjected to the press; the liquid flows with great facility, and is afterwards distilled; the residue of the distillation washed with many waters. The oil separated by the water, is placed upon a gentle fire, to evaporate all the moisture; it is then taken from the fire, and thrown upon filters, placed upon a stove heated to 30°; it filters freely, and the oil obtained is very clear and very mild. The products constantly obtained in this way, by M. Faguor, are ten ounces of oil from each pound of the peeled seeds, and only seven ounces with the rinds on. These products greatly exceed the quantity obtained by the old methods. M. Henry obtained a still larger proportion of oil, the difference probably depending on the superior force of his press. Half the quantity of alcohol employed, may be recovered by the distillation.—*Journal de Pharmacie*, October, 1822.

MIDWIFERY.

Case of Super-fœtation, by M. PERCY.—A woman of Torrigeny, in the department of the Seine et Marne, became pregnant in 1820, for the third time. The commencement of the pregnancy presented nothing remarkable, but about the fourth month she felt the movements of the child very distinctly, particularly on the right side: these, although at first very strongly marked, by degrees became weaker, and finally ceased altogether, without any obvious cause. At the end of seven weeks, she experienced again all the symptoms of a new impregnation, which excited great anxiety; but the nine months of gestation were completed without any considerable inconvenience. On the accession of labour, the pains succeeded each other so briskly that at the end of an hour a male child was born: it was small, but lively, and afterwards throve well. Soon after the expulsion of the fœtus, which was accomplished without any difficulty, fresh pains came on; during which several dark, inorganic, coagulated masses were expelled: these were followed by a black, flocculent, spongy mass, in the centre of which was found a female fœtus at the fourth month, in good condition, and which has been preserved.—*Revue Medicale*, Fevrier.

M. MOSCATI on *Morbid Occlusion of the Os Uteri during Parturition*.—Occlusion of the mouth of the Uterus, total or partial, may be the result of congenital malformation, or of rupture, or other injury from the employment of instruments during labour, and consequent cicatrization. Such obstruction may also arise from a change of position of the uterus in pregnancy, and the impracticability of restoring to the cervix its natural direction. Baudelocque, in such a case, unable to replace the uterus, tried to form in it an artificial opening; but the woman died from inflammation. Lauverjeat, in another instance, was more fortunate; he incised the body of the uterus on the prominence announcing the situation of the head of the fœtus, and thus procured its expulsion. The woman got well; and in two months after the uterus resumed its natural situation. But the partial occlusion of the orifice from cicatrices, consequent on laborious labour, is the more frequent occurrence. A woman, aged twenty-five, had been lacerated by imprudent application of the forceps. The uterine orifice was so much contracted by the resulting cicatrix, as only to admit a fine probe. Pregnancy again ensued; and on the occurrence of labour, forty-eight hours severe pain effected no sensible dilatation. Profiting by the recollection of a former unfortunate case,* Moscati was deterred from the usual mode of operating,

* In this case, incision of the uterus, necessitated by occlusion of its orifice, terminated fatally. On dissection, it was found that the uterus had

and thought of another simple means; which consisted in introducing a slightly curved *bistouri caché* into the uterine orifice, and making slight incisions round the whole circumference of the cervix, and thus enabling the orifice to yield to the necessary extent. The incisions, practised during the labour pains, caused no additional suffering. The uterine orifice, after the patient had reposed awhile, dilated circularly and uniformly; and the child and placenta were naturally expelled. Neither pain, hemorrhage, nor fever followed, and the woman speedily recovered. Still the uterine mouth did not regain its habitual softness, but presented a hard circle; an inevitable effect of the cicatrization of the numerous incisions which had been inflicted. With a view of dilating the orifice, a wax bougie, gradually increased in diameter, was for one week introduced every day, till it could no longer be borne. Eleven months after, the woman again became pregnant, and it was necessary to have recourse a second time to the bistoury to facilitate the process of parturition; but incisions, less deep than on the former occasion, were now requisite, and the operation was completely successful; as the woman, at the close of a third pregnancy, was delivered without any such assistance.—*Memoirs of the Italian Academy of Sciences.*

Case of Cæsarean Operation, in which the Mother and twin Infants were saved. By MM. HORN, father and son.—On the 27th of January, 1821, the Messrs. Horn performed the Cæsarean operation on the wife of one Amos, of Fischelbach, and had the satisfaction to save both the mother and twin infants. In consequence of the violent inflammation of the genital organs, supervening after a laborious parturition thirteen years before, the superior part of the vagina was found adhering to the os uteri, and firmly cicatrized. Between the labia majora, there was an aperture of not more than an inch in extent, and which, with great difficulty, could allow of the immisio penis. This aperture contracted into a narrow tortuous canal, the dimensions of which could not so easily be taken. Through this, the menstrual discharge came away. After recovering from the operation, the woman lived in her usual state of health for nine months after, and also the twin infants, who had been recommended to a good nurse. The Messrs. Horn attest the narrowness of the vagina, and the perfect adherence of its superior portion to the os uteri. Taking these circumstances into consideration. M. Hufeland is inclined to think, that the case furnishes an argument in favour of the theory, which supposes con-

been ruptured to a great extent, in the direction of the angles of the incision, by the pressure of the head of the fœtus.

ception to be affected by the aura seminale.—*Quarterly Journal of Foreign Medicine and Surgery.*

MISCELLANIES.

New Faculty of Medicine of Paris.—The King of France, by an ordonnance just published, has re-organized the Faculty of Medicine of the Academy of Paris. This official document is of great length; but we have extracted the principal facts contained in it, which may be interesting and useful to our readers to be acquainted with. The Faculty of Medicine is to be composed of twenty-three professors; thirty-six associates (*agregés*) are attached to these, two-thirds of whom are in exercise; and there is also an indeterminate number of free associates. The rank of associate can only be conferred on doctors in medicine or surgery, who have reached the age of twenty-five. The professors on this occasion are appointed by the king, and the two-thirds of the associates by the grand master of the University. In future, when there is a vacancy for the place of professor, three candidates are to be presented by the assembly of the Faculty, three by the Academic Council, (both taken from among the associates,) and the nomination shall take place from among these by the grand master, according to the regulations of the University. The professors and associates of the other Faculties of Medicine in the kingdom may also be named as candidates.

The chairs in the Faculty of Medicine are the following:—1, Anatomy; 2, Physiology; 3, Medical Chemistry; 4, Medicine; 5, Natural History (medical); 6, Pharmacology; 7, Hygiene; 8, Surgical Pathology; 9, Medical Pathology; 10, Operations and Dressings; 11, Therapeutics and Materia Medica; 12, Legal Medicine; 13, Midwifery and Diseases of Woman and Children. Two professors are attached to the chair of surgical pathology, two to that of medical pathology, and one to each of the others.

Relative to the admission of pupils, the following regulations are to be observed:—No ticket will be granted unless, 1st, The register of birth is produced; 2d, A certificate of good conduct and morals from the mayor of the commune, and confirmed by the prefect; 3d, The diploma of bachelor in letters and sciences; and, 4thly, If a minor, the consent of his parents and guardians.

The second ordonnance gives the names of the professors, attached to the different chairs of the Faculty, as follows:—Messrs. Beclard, anatomy; Dumeril, physiology; Orfila, medical chemistry; Peletan, jun. medicine; Clairon, medical natural history; Guilbert, pharmacology; Bertin, hygiene; Marjolin,

and Roux, surgical pathology; Fizeau, medical pathology; Richerand, operations, &c.; Alibert, therapeutics and materia medica; Royer Collard, legal medicine; Desormeaux, midwifery and diseases of women and children; Recamier, Laennec, Landré, Beauvais and Cayol, medical clinics; Boyer, Dupeyren and Bonjou, surgical clinics; Deneux, midwifery clinics.

Messrs. De Jussieu, Vauquelin, Dubois, Pelletan, sen. Deyeux, Pinel, Desgenettes, Chaussier, Lallemand, Le Roux, and Moreau, are named honorary professors. The associates (on exercise) appointed by the grand master of the University of Paris, in conformity with the above degree, are Messrs. Adelon, Alard, Arvers, Breschet, Capuron, Chomel, Cloquet, (Hyppolite,) Coutanceau, De Lens, Gaultier de Claubry (Emmanuel,) Guersent, Jadioux, Kergaradec, Maisonabe, Moreau (F. Joseph,) Murat, Parent du Chatelet, Pavet du Courteille, Rateau, Richard, (Achille,) Rullier, Segalas, Serres, Thevenot du Saint Blaise. By another arrêt of the grand master, M. Landré Beauvais, is named dean of the Faculty.—*London Med. and Phys. Journal.*

Notice of the Anatomical Preparations of Harvey, lately presented to the Royal College of Physicians.—They are six in number, and consist of the arteries, veins, and nerves of the body, displayed upon boards, to which they are attached either by some glutinous matter, or possibly, being dried upon the wood, adhere by the animal gelatinous substance itself. The blood-vessels are not injected, but the dissection of the cutaneous nerves, and of the ramifications of the arteries, is carried to great minuteness. If we consider that they are at least two hundred years old, and only reflect for a moment upon the purposes to which they served, being beyond doubt, they very preparations which the immortal Harvey employed in his lectures at the college, when he demonstrated the great discovery he had made, it is impossible not to consider them as objects of the most curious and interesting nature.

The history of their preservation, and the manner in which they have recently come into the possession of the College, adds, if possible, to their own intrinsic value. It is well known that Harvey had no children, but having endowed the College with his library and other splendid gifts, he left by his will the greater part of his property to his brother, whose daughter was married to the Lord Chancellor Nottingham, an ancestor of the present Earl of Winchilsea. These anatomical preparations remained at Burleigh on the Hill, the seat of that nobleman, who, a few weeks ago, presented them, through the President, to the College.

AMERICAN INTELLIGENCE.

Confirmation of the truth of Dr. Stevens' Operation, in which the Internal Iliac Artery was successfully tied.

Frederickstadt, St Croix, July, 1823.

MY DEAR SIR,—I take the liberty of soliciting your kind attention to the following corroborative circumstances on the subject of a most important and interesting operation, which was performed in this island by Dr. William Stevens—a few years since. I feel it my duty, having been an eye-witness to the operation, to do this justice to the doctor, since I have heard, that the London surgeons were disposed to doubt the authenticity of a statement which Dr. Stevens gave of this case, at the time the operation was performed. You will, therefore, confer a particular favour, by giving it publicity through the medium of your Journal of Medical and Physical Sciences.

In the fifth volume of the Medico-Chirurgical Transactions, page 422, you will find the history of a case, where Dr. Stevens of this island, tied the internal iliac artery, to cure an aneurism of the posterior iliac. The woman on whom this operation was performed, died at the Estate Enfield Green, on the 20th of December last. Dr. Stevens immediately made a preparation of the parts, which has been shown to almost every medical gentleman in the island, and will be sent to Europe by the first good opportunity. Dr. Stevens is getting a certificate from the gentlemen who have seen the preparation, for fear any accident may happen to it on its way to England.

The woman died exactly ten years after the operation, and never had any inconvenience from it, except a considerable hernia at the place where the incision had been made—which, however, gave her so little uneasiness, that she refused to wear a corset: she died from an affection of the chest. On dissection, it was found that the aneurism had been in the great ischiatic artery. For want of proper instruments the preparation is not minutely injected, but it shows completely all that Dr. Stevens wishes to prove, viz. that the internal iliac had been fairly tied. I was present at the operation, and have seen the preparation in its recent state. You may depend on the correctness of the above statement.

Our friend Dr. Abbott, who is the bearer of this, has also seen

the preparation, and can give you any further information that you may wish for on the subject.

I am, dear Sir, most respectfully,

Your obedient servant,

TO PROFESSOR CHAPMAN.

J. H. VAN BRAKLE.*

During his visit to this city, in the year 1816, the celebrated Valli, so well known by his intrepid investigation of pestilence, made the following communication to us, as embracing the result of what he had ascertained in relation to the plague of the East.—EDITOR.*

“1. The plague is a *contagious* disease, and persons who have *once had it*, are *very rarely* attacked a second time.

“2. The infection can be communicated to a person, by rubbing the matter of a pestilential sore on his skin.

“3. If pestilential matter, and variolous matter, be mixed together, and rubbed on the skin of an individual who has not had the small pox, or the plague, it will produce a mild plague, which is free from danger, and will protect against future infection. But the plague will not be so mild, if the person thus infected, has previously had the small-pox.

“4. If pestilential matter is well mixed with sweet oil, or unctuous matter of a similar quality, and rubbed on the skin, it will communicate a mild and safe pestilential disease, which generally protects from future infection.

“The above conclusions were derived from about three hundred experiments, carefully conducted.”

Cases Illustrative of the efficacy of Prussiate of Iron in Dysentery. Communicated by WILLIAM ZOLLIKOFFER, M. D.—The cases which I have heretofore presented the medical profession, in support of the remediate powers of the *prussiate of iron*, in intermitting and remitting fevers, were more numerous than I have it within my power to adduce on this occasion, in relation to its efficacy in the disease which is the subject of this communication. This circumstance may justly be attributed to the former being more frequent in its occurrence than the latter—which necessarily deprived me of an opportunity of testing its virtues more generally. However, the cases in which I have prescribed it, induce me to believe it to be a valuable re-

* We have conversed with Dr. Abbott, the gentleman alluded to in the above letter, who is one of the most respectable of our physicians, and find him fully to confirm the statement which it contains.

medy—and as such I would recommend it to the notice of the medical public. The first case in which I directed its use, claimed my attention in the month of August, 1822. This patient (Mrs. E——tt) had been labouring under the disease for four days, previous to her calling me in to attend her. Upon making the necessary inquiry relative to her situation, I was informed, that the *tenesmus* was almost insufferable, and the pain in the abdominal region very great. The evacuations consisted principally of sanguineous matter, with some mucus. The fever being considerable, led me to resort to *venesection*. I consequently took sixteen ounces of blood, and directed ten grains of calomel to be taken, which was in three hours after succeeded by an ounce and a half of castor oil. Other cathartics I had occasion to exhibit at different times, but with merely the effect of removing the general febrile excitement, when the local affection of the bowels assumed a chronic form. Supposing that the application of a blister might be attended with beneficial consequences, inasmuch as the fever had subsided, I directed one to be placed on the abdomen. This, however, failed in producing the desired effect. Being thus situated, I determined to recommend the administration of the *prussiate of iron*, believing it to be a valuable tonic and astringent medicine. I accordingly directed one powder, containing four grains, to be taken every four hours in a little sugar and water. But eight were only taken when permanent relief was afforded.

Case 2.—In September another case came under my care, in which I bled the patient twice, and gave *calomel*, *castor oil* and the *sulphate of soda*, at various times, and likewise applied a blister to the abdomen, without any visible effect. This lady was relieved effectually after taking seven doses of the *prussiate of iron*, in the quantity as above directed.

Case 3.—Mr. S——h, who was labouring under chronic dysentery, I succeeded in relieving by the use of this article.

Case 4.—In the latter part of September, a patient claimed my notice, in which, after using many articles unsuccessfully, I prescribed the *prussiate of iron*, with as little effect. This case was cured by the internal exhibition of the Peruvian bark.

Case 5.—In the early part of October I had occasion to visit a case of dysentery, which I succeeded in removing without the internal administration of any other remedy than the *prussiate of iron*.

Case 6.—Three days after I saw the above case, Mr. T——s called on me to visit his son, whom I found affected with the disease under consideration. His fever being rather high, induced me to bleed him, after which I gave three grains of the *prussiate of iron* in conjunction with four grains of calomel

every four hours, which affected a cure after six powders had been taken.

Case 7.—Mr. S——s' child, who was affected with dysentery, was perfectly cured in two days, by the use of the prussiate of iron in very small doses, after the administration of a dose of calomel.

In the *Western Quarterly Reporter*, a highly respectable Medical Journal, we find the following letter, giving an account of some improvements in the teaching of surgery, introduced by Professor Gibson, of this University. To the great merits of that very learned, adroit and diligent teacher, we would bear our own testimony, were it not rendered unnecessary by his well established reputation, and the undivided applause of his numerous classes.—EDITOR.

“In the beginning of the course, Professor Gibson gave us three or four written lectures on inflammation, which led me to fear that the whole course was to be delivered in the same way, and by consequence, that I should be very little interested by the lectures. My disappointment, however, was of the most agreeable kind, when I afterwards found that he went through the whole course without having the slightest written memorial before him, and that his discourses flowed with a clearness, precision and energy, which can only be the result of a thorough acquaintance with his subject, as well as of a profound study of each particular topic discussed. His whole desire seems to be the conveyance of instruction, without allowing himself to wander in search of mere ornament, or striving to acquire popularity by making a display. The ease and propriety of his manner as a public teacher give a lasting charm to his instructions, and the extreme attention he bestows on every thing that renders the subject clearer to the pupil, makes us all eager to catch every word offered for our consideration. There are some peculiarities in his mode of instruction which I will detail, as they are entirely original with him, and are so excellent, that I have no doubt they will be speedily adopted by other teachers. The great number of them will give you a most convincing proof, that he is ever trying to confer the greatest possible advantages on the class.

“In treating of gun-shot wounds, he illustrates all that is said by showing us the character of such injuries by shooting at the different parts of a subject, tracing the ball and exhibiting the peculiarities of the wound to the class. The superiority of this mode, over that of simply *talking* on the subject, is at once evident to all.

“He does not content himself with giving us abstract notions of *dislocations*, by merely showing the dry bones displaced, but by having the joints opened and dividing the ligaments, he displaces the bones in the various ways that we know to result from accident. Thus it has very nearly the exact appearance that the real injury would present, and we understand with facility the operations necessary to reduction.

“In explaining the diseases of the eye, the class are assisted by highly magnified and beautifully coloured paintings, on a scale of two feet to each eye. The diseases of the antrum and nose, are made plain by numerous drawings of the structure of the parts, as well as of the appearance of the diseases.

“The subject of hernia is elucidated by immensely magnified and splendid paintings in oil, made from dissections for the purpose. This renders the ideas of the student at once clear and correct, as at the same time, the disease is *imitated* on the dead subject by forming the tumour and sack, and the operation exhibited for its reduction. In a similar manner hemorrhoids, fistula in ano, hydrocele, scirrhus testicle, and diseases of the urethra, are all imitated on the subject, and explained by the aid of magnified paintings. *Lithotomy*, *amputation*, and in short, every operation in surgery, is thus made plain to the class, by a multitude of ingenious contrivances, and at a very considerable expense. As you have seen the splendid collection of wax models, made by Professor Gibson himself, it is unnecessary to repeat to you, that they are beautifully correct, and of great value to the student.

“There is one improvement of his, which deserves a particular mention, as it is of a very singular and highly instructive character. This is, the frequent introduction of the *living* subject, on whom a great many operations are performed; such as washing out the stomach, as in cases of poisoning, by means of the gum elastic tube and syringe, the introduction of *Anel's* probe into the *puncta lacrymalia*, and of the catheter into the bladder, &c. all of which, as they are to be performed on the living subject, are only to be understood when performed in this way. The class are under considerable obligations to this indefatigable teacher, for after giving us an opportunity of seeing him operate on private patients, others from the Alms-House are frequently introduced to exhibit certain diseases, or their effects on the system.

“During the winter he delivers a course of clinical surgery, at the Alms-House, where patients are brought into the area of the operating room, the peculiarities of their cases described, and operations performed when requisite. Sometimes they are brought in on their beds, which enables all the pupils to see, without subjecting the patient to the inconvenience of a crowd

immediately around his bed. This plan is also his, and he deserves our gratitude for the steadiness of his exertions for our benefit. He has performed the operation of lithotomy, three times in the Alms-House within a few months, with entire success; and in all, we have seen upwards of *thirty* operations by him this winter. The class in attendance at the Alms-House during this session, has been two hundred and fifty; heretofore it has never exceeded sixty. It is not difficult to foresee, that in succeeding winters this class will become very much larger.

“It strikes me that I have given you but a very hasty sketch of the peculiarities and advantages of this course, but you have enough to prepare you for appreciating the excellence of what you are to find here next winter. It is a fact, that these things have not yet been done in any of the schools of Europe, and are only known in this country through the pupils of the University of Pennsylvania.”

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